PB-214 984

REFUSE COLLECTION AND DISPOSAL FOR THE SMALL COMMUNITY

William A. Xanten, et al

Public Health Service
Washington, D. C.

November 1953

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REFUSE COLLECTION and DISPOSAL

for the

SMALL COMMUNITY

A Joint Study and Report of

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Public Health Service

Washington, D. C.

and

American Public Works Association

1313 East 60th. Street

Chicago, Illinois

November, 1953

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JOINT COMMITTEE
FOR DEVELOPING RECOMMENDATIONS ON REFUSE COLLECTION AND DISPOSAL FOR THE SMALL COMMUNITY

American Public Works Association

William A. Xanten (Chairman)
Superintendent
Division of Sanitation
Municipal Center Building
Washington 25, D.C.

Walter Bonnet
Civil Engineer
Corps of Engineers
2043 Building T.7
Washington 25, D.C.

Edward J. Clearly
Executive Director and Chief Engineer
Ohio River Valley Water Sanitation Commission
414 Walnut Street
Cincinnati 2, Ohio

Hill R. Healan
City Manager
City Hall
Meridian, Mississippi

Carl Schneider
Consulting Engineer
Department of Sanitation
City Hall
New Orleans, Louisiana

Percy B. Sprague
Superintendent of Public Works
Municipal Building
Valley Stream, New York

Department of Health, Education, and Welfare
Public Health Service

Ralph J. Van Derwerker (Chairman)
Chief, Municipal and Rural Branch
Division of Sanitation
Washington 25, D.C.

Joseph Coffey
Chief, Vector Control Section
Communicable Disease Center
50 Seventh Street, N.E.
Atlanta 5, Georgia

Ralph Graber, Sr. Sanitary Engineer
Asst. Regional Engineer, Region 5
69 W. Washington Street
Chicago 2, Illinois

Leo Weaver, Sr. Asst. Sanitary Engineer
Municipal and Rural Branch
Division of Sanitation
Washington 25, D.C.

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ACKNOWLEDGEMENTS

The Joint Committee wishes to express appreciation and thanks to the many individuals and organizations who assisted in the preparation of this publication. Especially appreciated are the comments and contributions of the following:

Dr. R. Baca, City Manager, Killeen, Texas.

Dr. G. W. Cox and staff, Texas State Department of Health.

Mr. William S. Foster, Engineering Editor, American City Magazine.

Mr. Donald F. Herrick and Mr. Robert D. Bugher, American Public Works Association.

Mr. W.O. Jones, City Manager, and Mr. O. McCoy, Waste Disposal Superintendent, Ft. Worth, Texas.

Mr. C.C. Johnson, Senior Assistant Sanitary Engineer, Division of Sanitation, Public Health Service

Mr. C. Klassen and staff, Illinois State Department of Health.

Mr. John H. O'Neill, Director, Division of Public Health Engineering, Louisiana State Department of Health.

Mr. O.C. Peterson, League Attorney, League of Minnesota Municipalities.

Mr. F. Roeder, Assistant Superintendent, Div. of Sanitation, Washington, D.C.

Mr. M. Stein, Office of General Counsel, Department of Health, Education, and Welfare.

Mr. J. Svore and staff, North Dakota State Department of Health.

Executive Committee, Conference of Municipal Public Health Engineers.

Executive Board, Conference of State Sanitary Engineers,

The short form ordinance with supplementary regulations and the long form ordinance were prepared in collaboration with the Office of General Council, Department of Health, Education, and Welfare, and have been reviewed by the American Municipal Association.

FOREWORD

Considerable progress has been made during recent years in the general field of environmental sanitation. Much of this progress can be attributed to the development of an excellent spirit of cooperation among Federal, State and local officials. This joint study and report, undertaken and prepared by officials from each level of government, offers convincing proof of the value of such cooperation.

The public health significance of a sanitary system of storing, collecting and disposing of municipal refuse has long been recognized. The adoption of such a system has been accepted, for many years, as a local responsibility. Many of the larger and intermediate size cities have taken steps to meet this responsibility but the installation of such systems in smaller communities has been considerably slower. Many reasons could be cited for the lack of sanitary refuse collection and disposal systems in the smaller communities. The past, however, is not so important as the future.

If our living standards are to continue to rise---so must our sanitation standards. The authoritative information presented in this publication will serve as a practical working guide to conscientious municipal officials who wish to secure for their communities a sanitary refuse collection and disposal system.

It is our sincere hope that they will be successful in obtaining the support needed to achieve their objective.

Leonard A. Scheele, Surgeon General
United States Public Health Service

Allan H. Rogers, President
American Public Works Association

PREFACE

According to the United States Census of 1950, more than 33 millions of our inhabitants live in some 8,400 urban and rural communities of from 1,000 to 25,000 population. The trend towards concentration and urbanization of the population has brought with it many advantages, but it has also developed many problems. Among these is that of providing sanitary refuse storage, collection, and disposal.

Surveys have shown that many small communities do not follow sanitary refuse practices. There are many reasons why these communities have not taken steps to protect the health and welfare of their citizens from the hazards associated with the inadequate and insanitary storage, collection, and disposal of refuse. Predominant among the basic causes, however, is the belief that adequate service is too expensive, and a lack of information on how to establish and operate a satisfactory system.

It has been clearly demonstrated many times, that urban fly control and rodent control must be based upon adequate storage, collection, and disposal of community wastes. It has been said that proper refuse sanitation will do 90 per cent of the job in fly control, and 65 per cent in rodent control. In addition, there seems to be a significant relationship between the incidence of certain diseases in both humans and animals and improper refuse disposal. It is well known that many public nuisances, in the form of smoke, odors, and unsightliness, result from improper refuse practice.

A practical refuse control program is within the means of any community. This publication proposes to describe certain factors which need to be considered in establishing sanitary refuse practices, and to present representative operational and cost data in such manner that they may be interpreted to meet local conditions. In short, it aims to supply concrete information which can be applied to specific cases.

It is sincerely hoped that the information contained herein will be of assistance to those working toward better community health by providing for the proper handling and disposal of solid waste products.

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INTRODUCTION

Much more than technical know-how is involved in setting up a successful program of refuse sanitation in a small community. Before technical ability can be put to work, it is necessary for the community's citizens to understand the need for adequate and safe refuse practices. Civic improvement in health and safety is seldom brought about by laws backed up by the police, but rather by the desire and cooperation of the citizen to make his community a safer and healthier place in which to live. Where there are obvious hazards such as rats and flies, or possible hazards such as open dump areas used by children for play, public health workers must bring them to the attention of the community. When such hazards are substantiated by reliable data and experience, it is the rare individual who would not demand that they be eliminated. When improvement is demanded as a result of community awareness of difficulties or dangers connected with inadequate or insanitary refuse storage, collection, and disposal, only then is it time for a plan such as this to be initiated.

In all cases, as the plan is undertaken, it is essential that the community be informed of how, what, and why this is being done. This may be accomplished through the media of newspapers, radio, television, civic organizations, and especially the schools. Whatever the manner or means of expression chosen, the important factor is always that the community be informed of the program. Information should be specific and easily understandable.

AUTHORIZATION TO PROCEED

There is a legislative procedure that must be followed by a community which does not already possess the power to establish a system. This consists of enactment by the local governing body of an ordinance which will authorize and direct the establishment, maintenance, operation, and financing of a refuse collection and disposal system, and the establishment and enforcement of necessary and proper regulations for the storage, collection, and disposal of refuse. (A long-form ordinance, and a short-form ordinance with supplementary regulations, have been developed for use as guides, and are included in the appendices.)

DEFINITIONS

Uniformity of terminology is necessary for maximum understanding by those working together in the same field. The following definitions, based on those published in Refuse Collection Practice, American Public Works Association, 1941, are recommended. Throughout this publication, these definitions shall apply:

1. Refuse. - All putrescible and nonputrescible solid wastes,(except body wastes), including garbage, rubbish, ashes, street cleanings, dead animals, abandoned automobiles, and solid market and industrial wastes.

2. Garbage. - Putrescible animal and vegetable wastes resulting from the handling, preparation, cooking, and consumption of food.

3. Ashes. - The residue from the burning of wood, coal, coke, or other combustible materials.

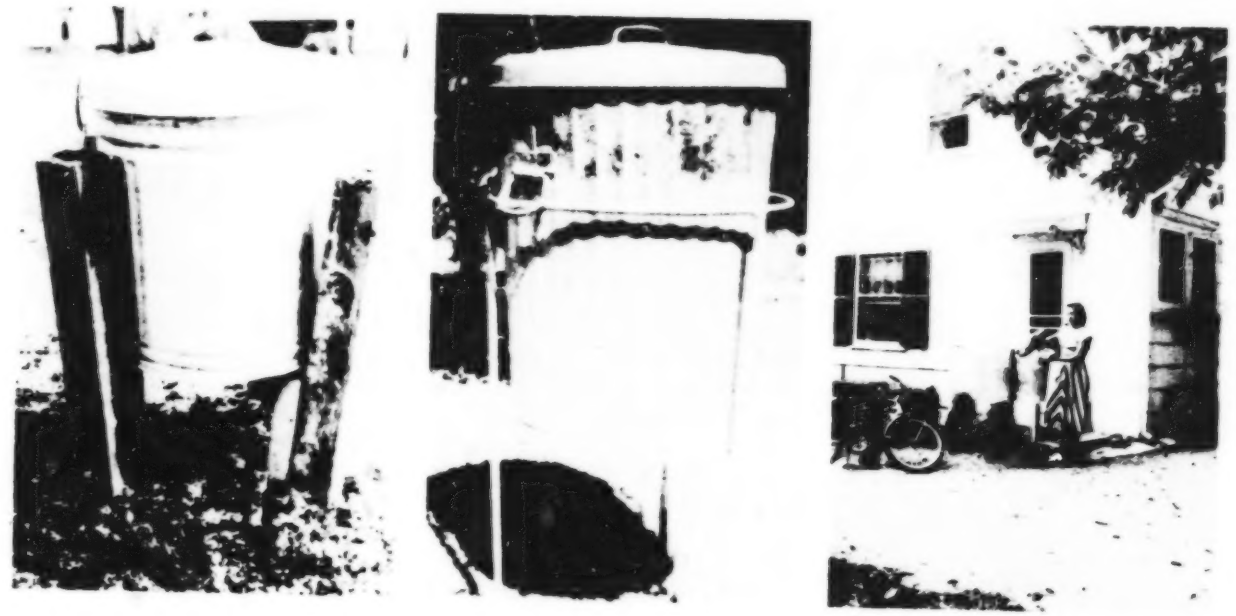
4. Rubbish. - Nonputrescible solid wastes (excluding ashes), consisting of both combustible and non-combustible wastes, such as paper, cardboard, tin cans, yard clippings, wood, glass, bedding, crockery, and similar materials.

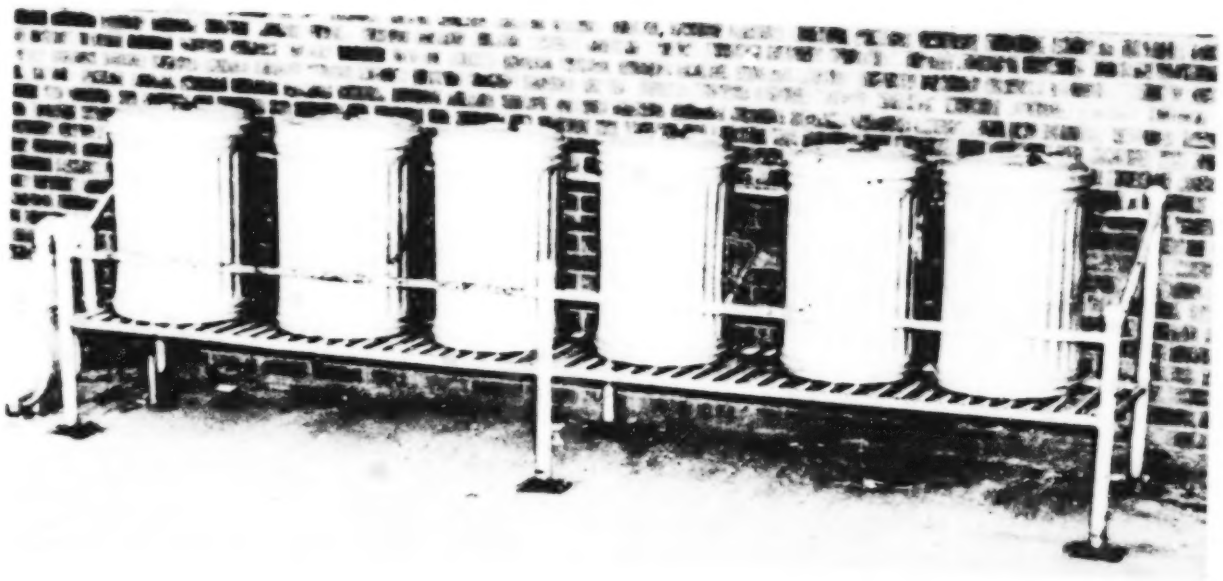
STORAGE OF REFUSE

Preparation

Premises storage is an important phase of the refuse program that is too often neglected. Yet, experience has proven that proper regulations, duly observed, that govern the storage of refuse at the point of origin, not only minimize public health dangers, but also aid materially in speeding up the collection process, with consequently lower cost to the community.

Decisions regarding preparation must be based largely on the type of equipment utilized for collection, as well as on the method of disposal to be followed. Some limitations regarding size and acceptable quantities of refuse will be required. It is especially important to establish rules which require the use of receptacles for all refuse produced by the householder, so as to eliminate the promiscuous use of alleys, streets, or other public or private space, for the "piling" of material. Reasonable quantities of yard refuse (e.g., leaves, cut grass, and clippings) should be accepted as legitimate material for collection, if properly bundled or receptacled. Also, consideration should be given to special requirements to avoid overweight containers, dangerous liquids, broken glass, or other material that poses a potential hazard to the collectors.





Illus. 1. - Good Storage Practice.

Point of Collection.

The point of collection is important, not only as a time consideration, but also as a financial consideration. Curb and alley collections combine minimum time for collection with the minimum cost for the service. Therefore, where cost is paramount, curb or alley collection probably will be necessary. Where better service and community appearance are the aim, consideration should be given to other collection points, or to carry-out service. (In carry-out service, the collector, rather than the householder, carries the refuse from the storage point to the truck-service point. This is, perhaps, most acceptable from an aesthetic viewpoint, and permits more flexible collection, whereas curb collections usually require a more-or-less rigid schedule. Curb collections which are missed, for good reasons, are sure to give rise to complaints, but householders are less troubled when rear-yard collections happen off schedule.)

An alternative to carry-out or curb collection which should be seriously considered is the placing of containers behind existing fences or, where fences at the front of the house do not exist, at the building line. This requirement makes refuse less conspicuous when set out for collection, without imposing the excessive costs involved in carry-out service. It is a slightly more expensive service than curb service, but is infinitely more desirable than curb service from an aesthetic standpoint.

Regulations.

In order that the householder or businessman may be aware of what is expected of him, regulations in condensed form should be furnished to each house and business place from which collection is to be made. This is usually accomplished by listing pertinent items on a card, which can be displayed in the kitchen or other appropriate area for ready reference.

The notice should cover at least the following items: (1) definitions, (2) places to be served, (3) places not to be served, (4) scheduled day or days of collection, (5) materials acceptable for collection, (6) materials not acceptable for collection, (7) preparation of refuse for collection, (8) types and sizes of containers permitted, (9) point from which collections will be made, (10) necessary safeguards for collectors, (11) penalties for violators, and, if applicable, (12) method of billing for service.

Suggested regulations are included in the appendices. Since most smaller communities will find the sanitary landfill method of disposal best suited to their needs (see discussion in the section on Disposal), the outline on combined storage in the typical regulations will probably be the most useful.

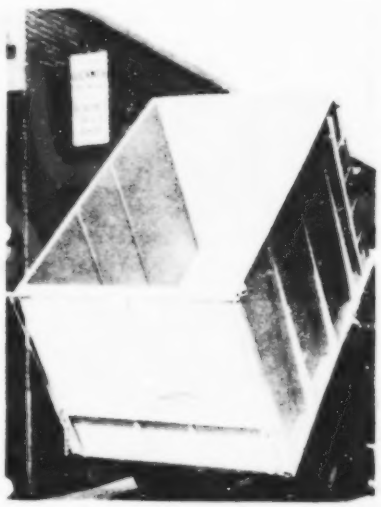
COLLECTION OF REFUSE

The community's collection system should be properly organized. There are two principal ways in which this can be done. The system can be municipally operated, or the municipality can license and regulate one or more private firms or individuals to provide refuse collection and/or disposal services. The latter may be accomplished by contract with the municipality, or directly between the licensed contractor and the householders and businesses concerned. Experience has shown that, generally, arrangements by individual householders are unsatisfactory on a community-wide basis. Whether a system can be better operated by the municipality itself or contracted for by the municipality depends, of course, on local conditions. In any case, the costs outlined in this plan are based on a system operated on a non-profit basis. A private firm would, of course, have to add a sufficient amount to provide for a fair profit.

In addition to deciding whether operations will be carried out by town employees or licensed agents, it is necessary to determine the extent of service desired. For example, should the organized system include collections from both residential and business areas, or just residential areas with individual responsibility placed on business establishments? Again, this is a question involving both economics and the health needs of the community. In some cases, the community first provides for service to the residential areas, and later extends it to business establishments when it is believed that inadequate or insanitary private service is being supplied, and/or the community business organizations request it.

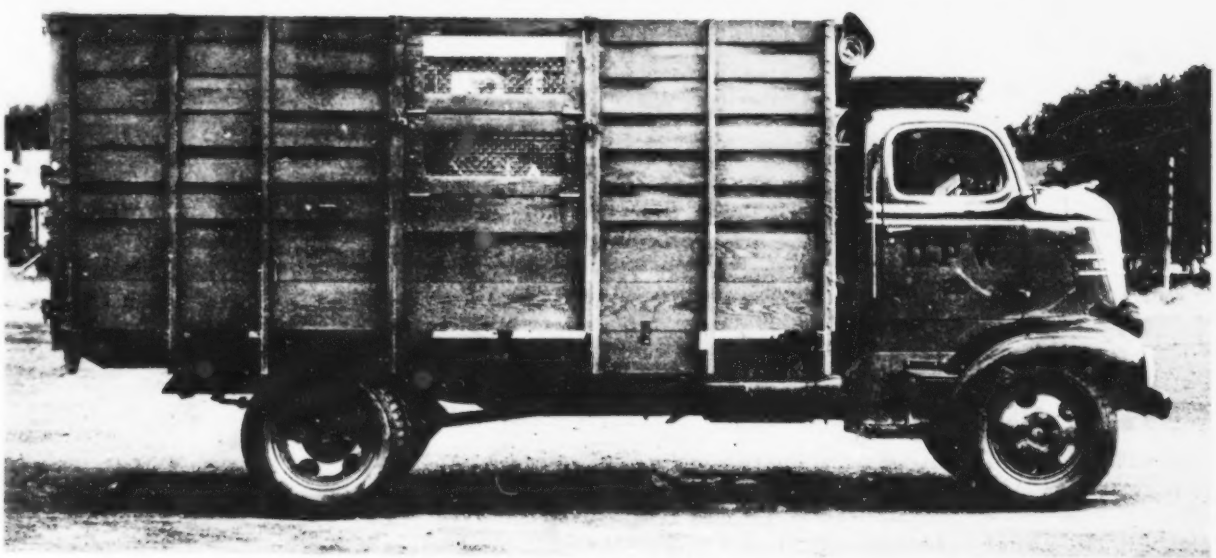
Obviously, additional services involve more costs and increased funds are necessary as the system is expanded. In some communities, special permission is granted to individual businesses or industries to haul their own refuse to an authorized disposal point. All such operations should be in accordance with community requirements.

It is necessary, now, to consider the system itself, for which specific items have to be determined: (1) The number and size of collection vehicles necessary to collect the amount of refuse that is produced by the community; the number of employees necessary to man these trucks and to perform this service efficiently; the routes to be followed by the collection vehicles in order to provide a balanced schedule for the size of trucks, number of men, and hours of work; (2) the method of final disposal; and (3) the method of financing the system to make it a self-sufficient organization.



Steel, Open

Steel, Enclosed



Wood, open, for rubbish.

Illus. 2. - Typical Non-Compactor-Type Collection Units

Equipment and Personnel.

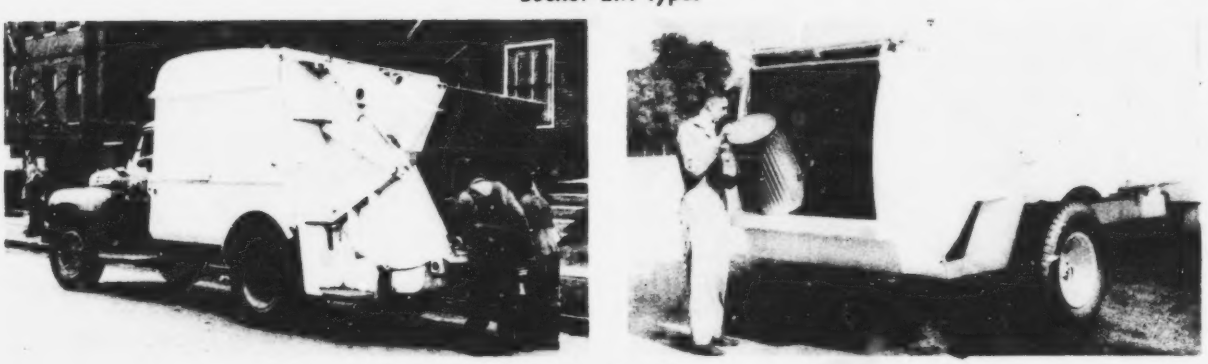
The number and size of the collection vehicles are so closely associated with the amount of refuse to be collected that these items should be considered together. Chart No. 1 is suggested as a guide for determining these factors. This chart was produced as a result of time-and-motion studies in a number of American communities. It is based on combined collections; two collections per week for residential areas and, when included, six per week for business places; an 8-hour working day, 6 days per week; a driver and two helpers per truck; the use of compactor-type trucks; and an average haul of 2 to 4 miles to the disposal area.

Where the population is not large enough to warrant a compactor-type truck for full-time operation, other models and sizes should be considered. For instance, if a community found that it needs 1-1/2 compactor-type trucks, an open-body dump truck with a canvas cover could be substituted for the half-unit, effecting a lower initial cost of equipment. The use of the dump truck would have particular application for collections from business areas situated fairly close to the disposal site. Also, the potential part-time use of dump trucks for other municipal work should be considered in the selection of equipment for refuse collection.

The use of Charts 1 and 2 is best illustrated by an example: For a community of 8,000 people, Chart 2 shows that refuse collected from residential areas may amount to approximately 50 cubic yards of compactor-truck volume per day. With business areas included, the amount may approximate 65 cubic yards a day. Quantities may vary according to local conditions and as noted on the charts. These figures are general averages.

Chart 3 shows the trucks necessary to handle this amount of refuse, utilizing curb and alley collections, as 1.0 for residential only and 2.0 for both residential and business collections. Allowing three trips daily for each truck, we arrive at a total capacity, for residential collections only, of $\frac{50 \text{ cu. yd.}}{3}$, or about 17 cubic yards per load; and, for business and residential, of $\frac{65 \text{ cu. yds.}}{3}$, or about 22.0 cubic yards per load. While a literal interpretation of the

Bucket-Lift Types



Batch-Loading Types

Illus. 3. - Typical Compactor-Type Collection Units.

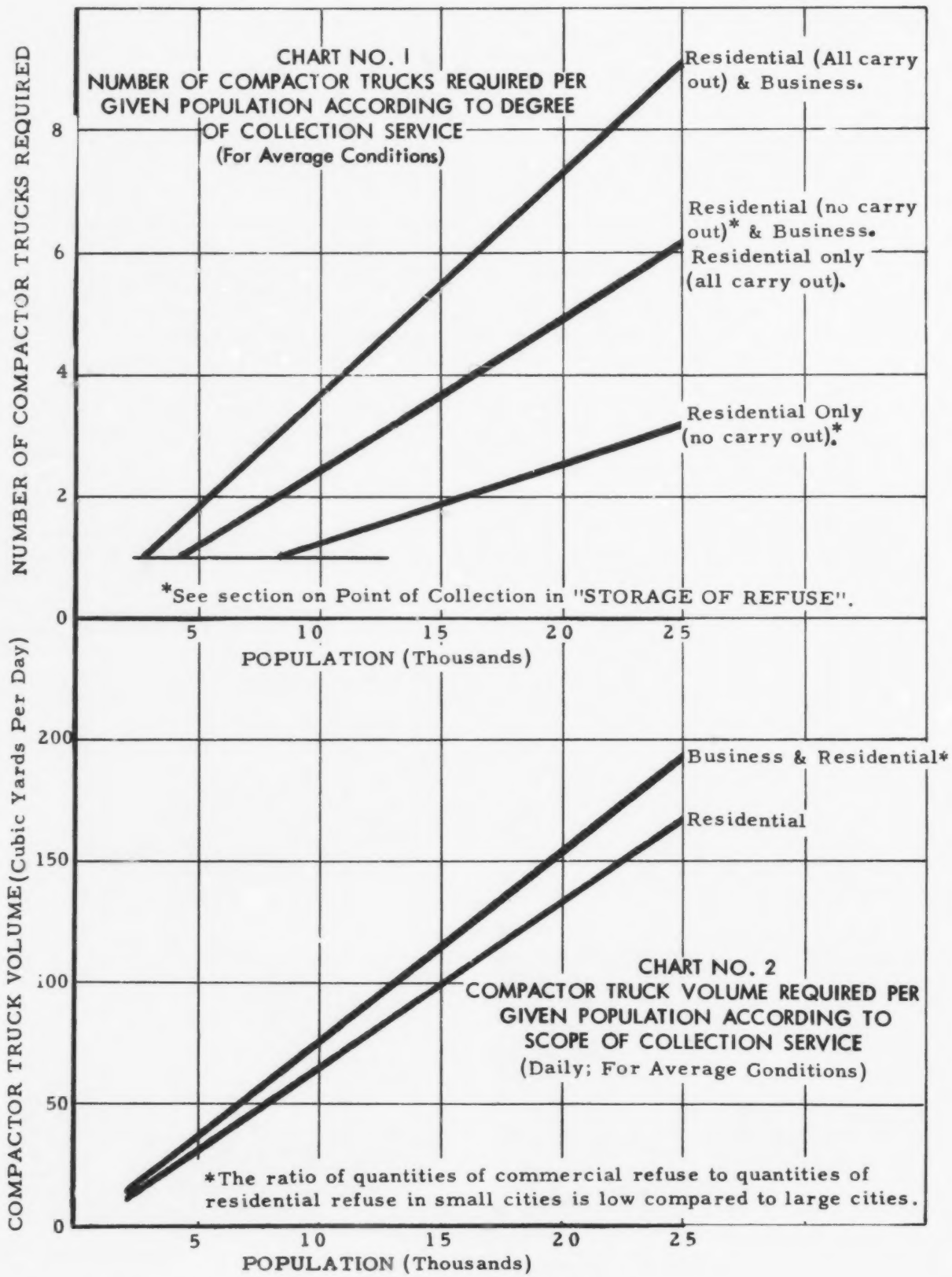


CHART NO. 1
NUMBER OF COMPACTOR TRUCKS REQUIRED PER GIVEN POPULATION ACCORDING TO DEGREE OF COLLECTION SERVICE
(For Average Conditions)
NUMBER OF COMPACTOR TRUCKS REQUIRED
0
2
4
6
8
Residential (All carry out) & Business.
Residential (no carry out)* & Business.
Residential only (all carry out).
Residential Only (no carry out).*
*See section on Point of Collection in "STORAGE OF REFUSE".
5
10
15
20
25
POPULATION (Thousands)
COMPACTOR TRUCK VOLUME (Cubic Yards Per Day)
0
50
100
150
200
Business & Residential*
Residential
CHART NO. 2
COMPACTOR TRUCK VOLUME REQUIRED PER GIVEN POPULATION ACCORDING TO SCOPE OF COLLECTION SERVICE
(Daily; For Average Gonditions)
*The ratio of quantities of commercial refuse to quantities of residential refuse in small cities is low compared to large cities.
5
10
15
20
25
POPULATION (Thousands)

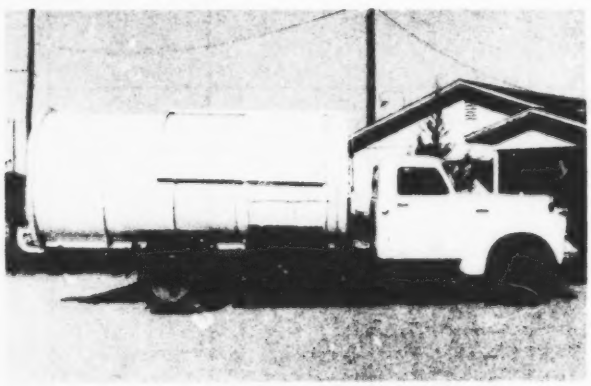
graph indicates only 1 truck required for residential collection, it is important to note that this would apply only under the most ideal circumstances, i.e., the ability to make 3 loads a day with 1 crew utilizing a very large size compaction unit, and having no unusual points of collection requiring special attention. Therefore, for practical purposes, two 9 cubic-yard compactor-trucks are suggested for residential collection, and two 12 cubic-yard compactor units are suggested for total collections. Again, the influence of local conditions is emphasized in that it may not be possible to collect 3 loads per day when using the larger compactor-type truck, because of more sparsely populated collection areas, hilly topography, or other conditions. (Typical standard sizes of compactor-type units are 9, 12, 16, and even 20 cubic yards.)

In utilizing open-body dump trucks as a substitute for compactor-type units, allowance should be made for approximately 25 per cent additional body volume. Therefore, in the above case of residential collections, two 12 cubic-yard open-body dump trucks would be required; or one 12 cubic-yard compactor and one 8 cubic-yard open dump truck. In the latter case (with business places included), the requirement would be three 10-cubic-yard open dump trucks. It should be noted that 3 loads daily is a more reasonable expectation from the larger open dump trucks than from the larger compactor-type trucks. (Note: Enclosed, steel-body, non-mechanical-loading dump trucks should be considered better than the tarpaulin-covered open dump truck.)

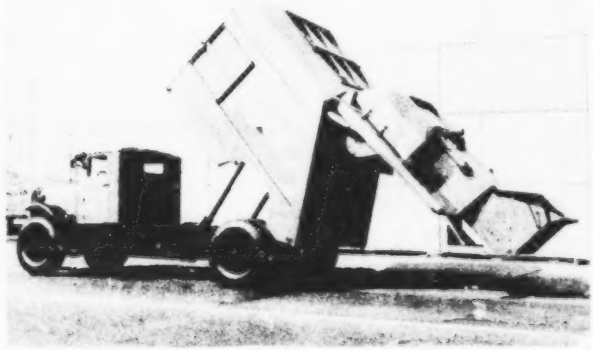
The number of trips a truck can make in a day is an important consideration in determining the number and size of the collection vehicles. The factors to be studied include the length and average speed of haul, the number of helpers on the truck, the topography of the collection area, the point from which collections are made, and climate.

Careful attention should be given to the routing of the collection vehicles, in order that the daily workloads will be balanced for all crews. In setting up a new system, every attempt should be made to locate the disposal site or sites as strategically as possible, with relation to the areas to be served, to maintain as short a haul as possible in all cases. A map indicating population densities and business areas will be found to be very useful.

In working out balanced routes in residential areas, utilizing a 3-man crew (2 helpers and a driver) on compactor-type trucks, surveys have shown that 0.9 minutes for each alley and curb pickup, and 1.7 minutes for each carry-out service, are good average figures. A pickup point is defined as one storage area for one or more containers serving one dwelling. Such a dwelling might contain more than one family. In an area of large apartment houses, the average figure could be significantly altered. (However, in the average small community, few, if any, large apartments exist.) These surveys show that, on the average, there are approximately 5 persons per unit collection point or pickup; 8 per cent of these points will yield an approximation of the number of business pickups. In business areas, 3.5 minutes per pickup was found to be a good average. The number of minutes per pickup point includes non-productive time, such as



Side-Loading, Plate-Compactor Type



Flight-Conveyor-Loading Type

Illus. 4. - Typical Compactor-Type Collection Units.

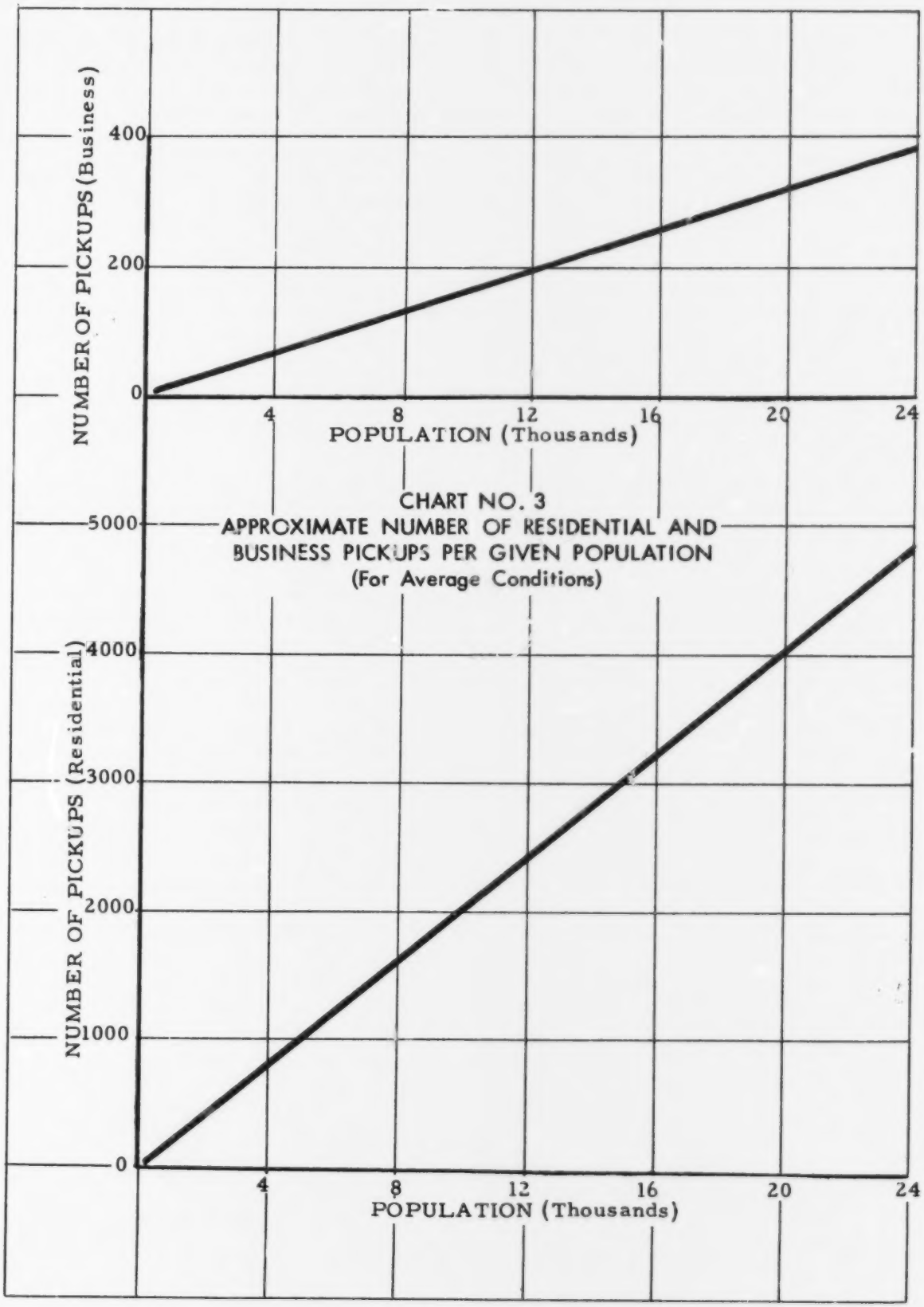


CHART NO. 3
APPROXIMATE NUMBER OF RESIDENTIAL AND BUSINESS PICKUPS PER GIVEN POPULATION
(For Average Conditions)

that required going to and from the disposal area; time for refreshment, time for getting to and from the route in morning and evening, and other non-productive periods. Obviously, this may vary significantly under unusual circumstances, such as one involving a haul of many miles to the disposal site. In any case, the above averages will be useful in initial planning of routes. By utilizing a property map of the community, and applying the representative minute-per-pickup figures to each occupied property, it will be reasonably possible to estimate daily routes. (Chart 3 shows the approximate number of residential and business pickups per given population.)

Where a collection system is already in use, or where it is possible to run time studies, it is preferable to determine the actual minutes per unit-dwelling required by the collection crews under operating conditions. In any case, adjustment of routes by actual operating experience in the field will be necessary.

DISPOSAL OF REFUSE

Sanitary Landfill

The method to be used for disposal should be determined by community characteristics and careful study of the over-all problem. Since experience has shown that, in small communities, the sanitary landfill method of disposal is usually most applicable, it should be given first consideration. The sanitary landfill method differs from open dumping in that the refuse is compacted and, at the close of each day's operation, is covered with a layer of earth. When an area has been brought to final grade, it should receive a minimum cover of approximately 2 feet of earth. The entire disposal operation is thus accomplished without creating any public-health or nuisance hazards, as well as doing away completely with that historic community eyesore, the open dump.

The sanitary landfill offers the best means of complete sanitary disposal of refuse at the least cost to the small community. However, where unusual local circumstances invalidate this assumption (as, for example, in suburban areas), consideration should be given to such other methods of sanitary disposal as incineration of all refuse, or a combination of rubbish incineration and either garbage-grinding or cooking for swinefeed.

Specifically, a sanitary landfill consists of the disposal of refuse on land and the prompt covering of the material with sufficient earth to prevent health hazards. To accomplish this in an efficient and economical manner, the refuse must be compacted into the smallest practicable volume by a crawler-type tractor or other suitable compaction machine. There are three methods in general use today which utilize the sanitary landfill principles – the trench method, the ramp or progressive-slope method, and the area method.

A. In the trench method, cover material is obtained by excavating a trench; the refuse is then dumped into the trench and compacted; finally, earth cover is obtained by excavating an adjacent trench. (See Figure 3.)

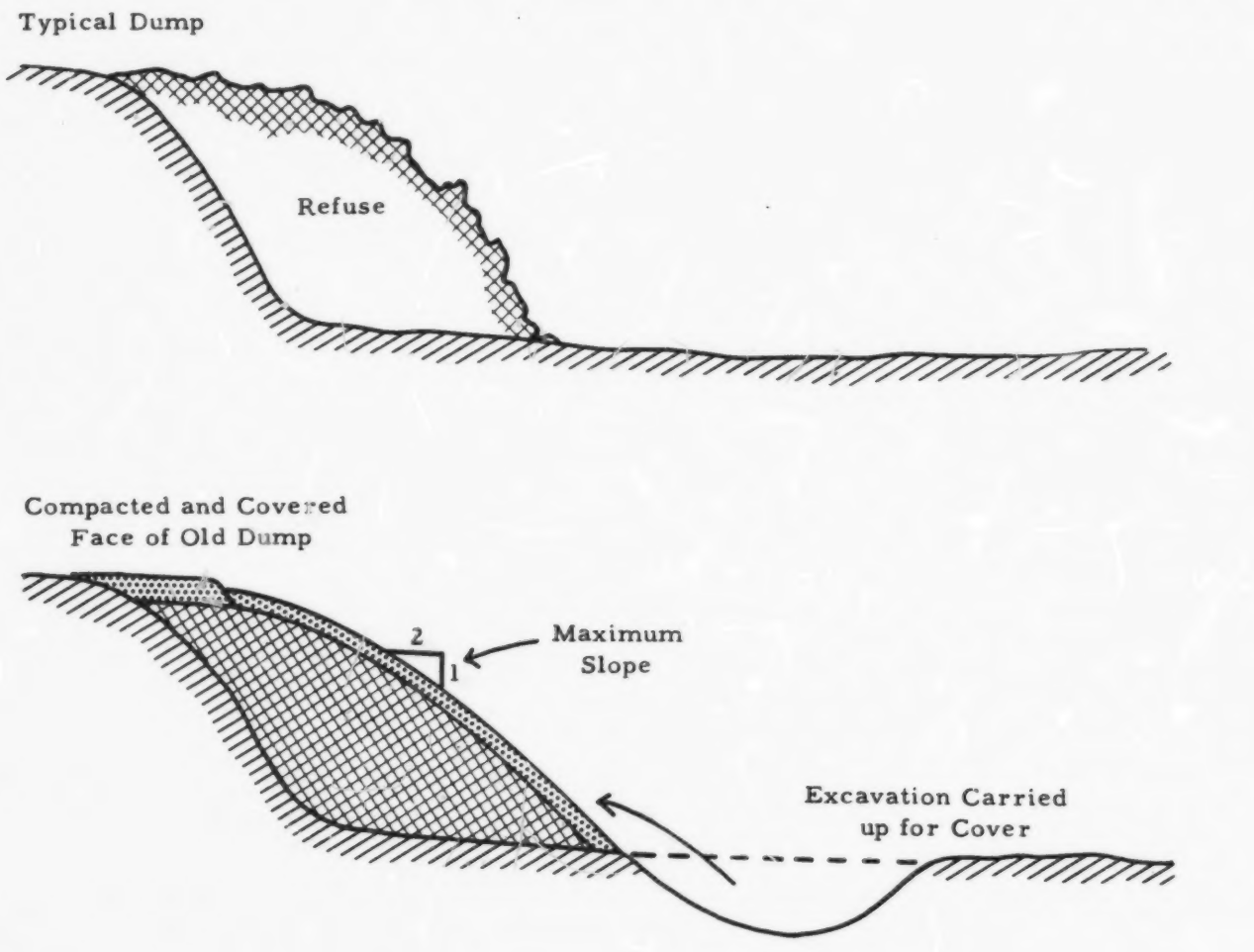
B. The progressive-slope method is an adaption of the trench method. Instead of digging a trench, as such, cover material is obtained from the area just ahead of the working face of the landfill. (See Figures 1 and 4.)

C. In the area method, no trench is excavated; cover either is hauled in or is obtained from areas immediately adjacent to the work site. Usually, this method is utilized when the soil conditions in front of the face of the fill do not permit tractor operations, such as in swampy areas.

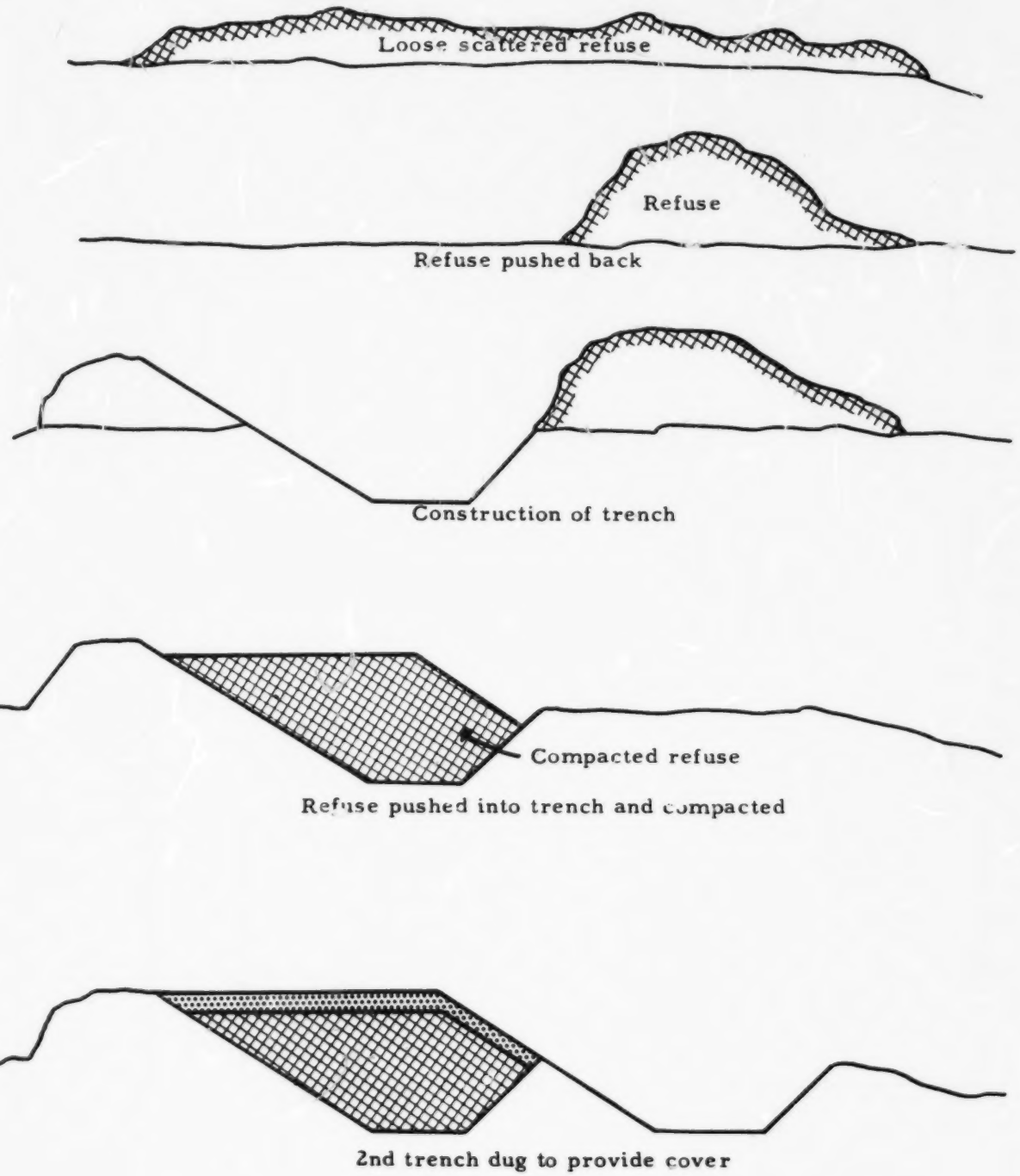
There are a number of detailed variations in operation; the references listed in Appendix B cover a wide range of techniques. In any case, it is recommended that operators without previous experience should be guided by experienced consultation and, if at all possible, should visit a nearby, well-operated sanitary landfill before starting operations.

Important items to consider when establishing a sanitary landfill include:

CONVERSION OF BANK TYPE DUMP
FIG. 1

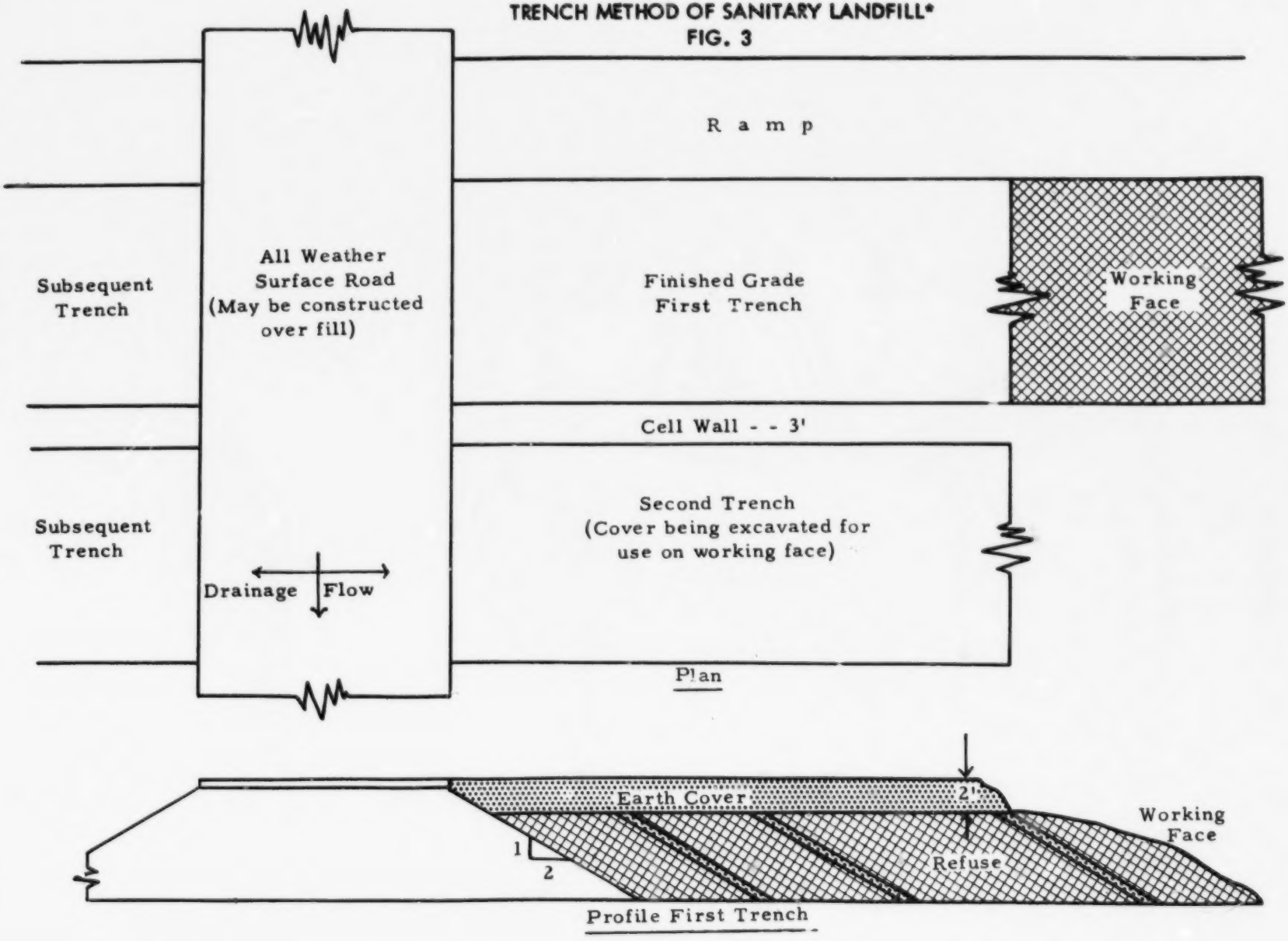


CLEANING UP AN AREA DUMP*
FIG. 2



*Modification of sketch which appeared originally in Reference 10.

TRENCH METHOD OF SANITARY LANDFILL*
FIG. 3

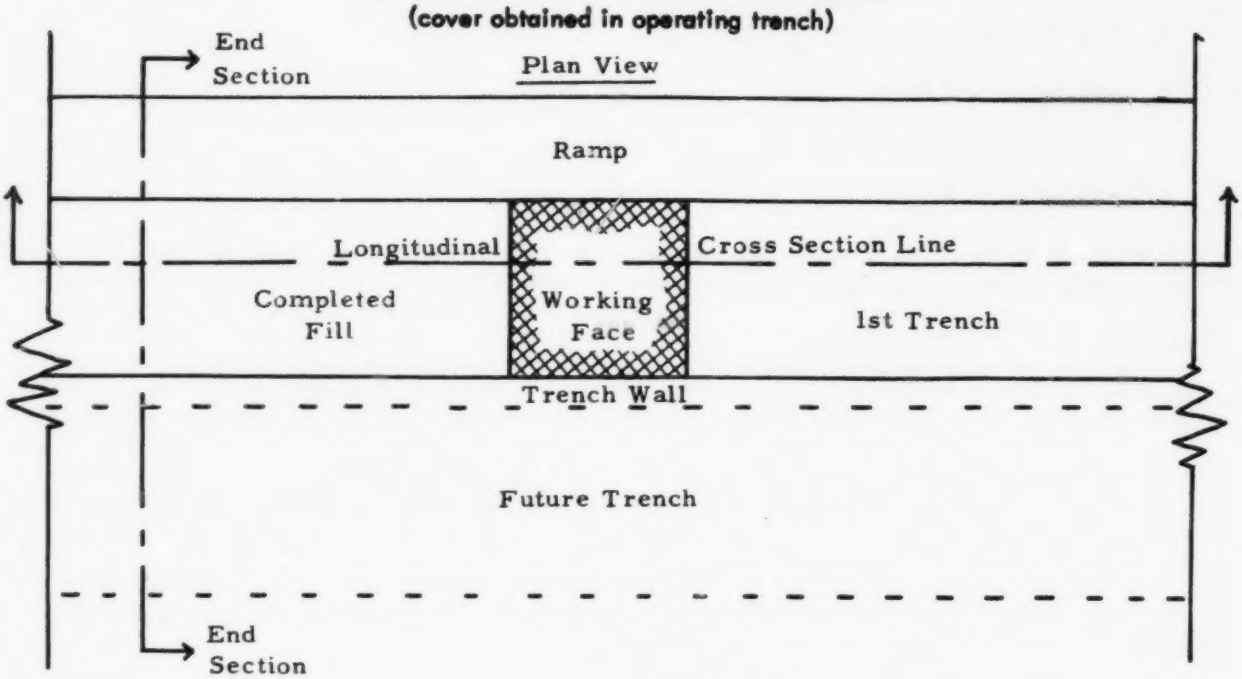


*Modification of sketch which appeared originally in Reference 10.

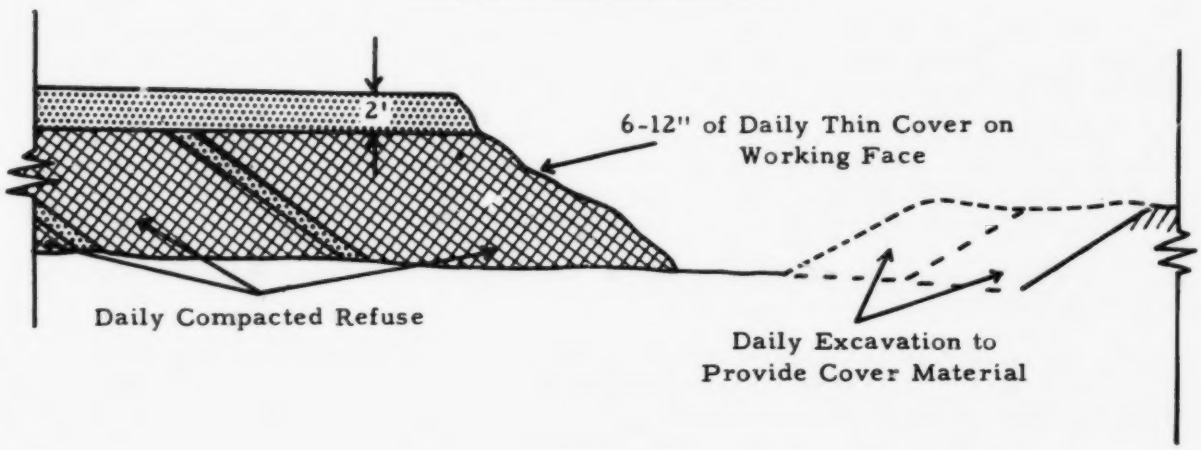
FIG. 4

TRENCH METHOD OF SANITARY LANDFILL

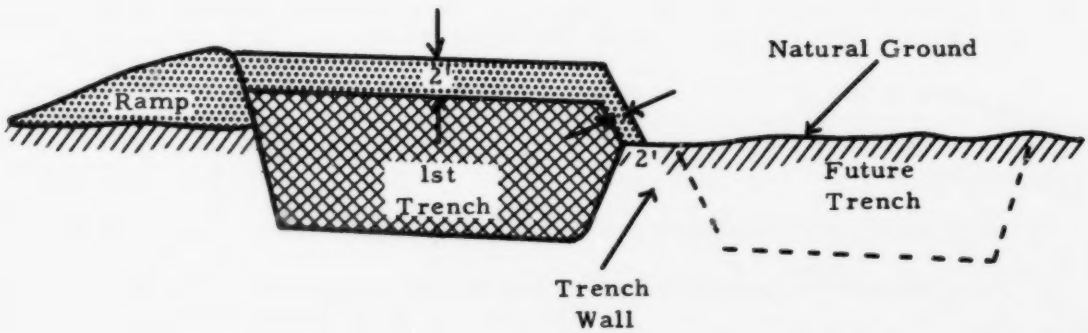
(cover obtained in operating trench)



Longitudinal Cross Section



End Section



1. Site selection.

2. Method of operation.

3. Necessary equipment and operating personnel.

4. Ultimate use of reclaimed land.

The choice of the disposal site should be governed largely by distance from sources of refuse, climatic influences, bridges, the availability of suitable access roads, and similar factors. Low areas, such as ravines, swamps, and abandoned borrow pits, may be regarded as suitable topography, provided that fill operations do not obstruct natural drainage courses, and that earth is available for cover material. Sandy loam soil is the most desirable cover material, but other types of soil can be used without serious difficulty. Impervious clay is the least desirable, since it creates traction problems in wet weather and has a tendency to produce fissures in dry weather.

Current practices in the operation of landfills vary according to size of community, condition of site, and equipment available. The following principles are offered for general use in landfill operation:

1. Disposal of refuse by the landfill method should be planned as an engineering project. If you cannot find an experienced person locally, request such assistance from your State health department.

2. Landfills should be so located that seepage from them will not cause hazards or nuisances.

3. The face of the working fill should be kept as narrow as is consistent with proper operation of trucks and equipment, in order that the area of refuse exposed during a normal day's operation will be minimized.

4. The exposed surface of the refuse should be covered with earth as promptly as proper operations will permit, and both the surface and the face should be covered daily on full-time operations. (On less than full-time operations, the refuse should be covered at least twice a week during warm weather, and as often as practicable during cold weather.)

5. The final covering for surface and side slopes should be maintained at a depth of approximately 24 inches.

6. Adequate and proper surface drainage should be provided to prevent ponding and/or erosion by rain water. This is usually accomplished by providing for a slope of from one-half to one percent when placing final earth cover.

7. Refuse should be compacted into cells or lifts not exceeding 6 feet in depth. The compaction procedure should provide for the refuse to be compacted in thin layers (approximately a 2-foot depth of loose refuse at a time). Where fills deeper than 6 feet are desired, they should be attained in stages wherein 6-foot cells or lifts are constructed one on top of another with at least a 6-inch layer of compacted earth between cells.

8. Attention should be given to the control of insects and rodents (by consistently good operation which may obviate the need for periodic baiting and/or spraying), blowing paper (by adroit erection of poultry-wire or snow fences), and fire hazards (by making specific fire control arrangements).

9. Scavenging is not recommended, but should be rigidly controlled if permitted.

10. For bad weather operation, an alternate operating area may be desirable.

The equipment and personnel needed for successful operation of a sanitary landfill will depend on the amount of refuse that is to be handled daily. Generally speaking, for communities of between 10,000 and 15,000 population, a crawler-type tractor equipped to pick up and carry 1 to 2 yards of cover material would be sufficient for all fill operations. The tractor operator will usually be able to serve as the landfill superintendent, and no other personnel should be required to carry on the disposal operation.

Communities of less than 10,000 population present a problem in that, generally, they do not have need for equipment of this size for full time operation. In order that the total cost and depreciation may not have to be borne by the disposal operation, arrangements may be made to share this equipment with other community activities or with neighboring communities, on a reimbursable basis. Some communities rent equipment by the hour from local contractors.

Recent demonstrations have shown that light crawler-type tractors will provide reasonable compaction, and can supply adequate cover from stockpiles to homogenous refuse dumped in a previously excavated trench. Since such tractors, equipped with front-end loaders, are obtainable for approximately $3,000 to $5,000, many communities in the under 10,000 population group may find it feasible to utilize this equipment. In certain soils, excavation of trenches may be uneconomical with such light equipment; it is recommended in such cases that trenches be excavated in advance by rented or loaned heavy equipment. The use of such light equipment for compaction requires also that selective dumping be practiced, i.e., large hard-to-handle objects, such as car bodies, tree limbs, and fenders, should be dumped in a specifically designated separate area.

Where equipment must be brought in for part time use, it may be necessary to prepare enough trench at one time to take care of the refuse for as long as 6 to 12 months in advance. Chart 4 may be used to determine the length of a trench, 4 feet deep and 17 feet wide, to provide sufficient cover material for an operational period of 30 days. (These dimensions have been found to be satisfactory for normal operation.)

Incineration.

As indicated previously, sanitary landfill may not be practicable for some small communities, due to lack of available land within economical hauling distance. Where the distance from the community to a satisfactory sanitary fill site exceeds 10 miles, the extra cost of transportation may be great enough to warrant the operation of an incinerator for disposal of the refuse, when added to the normal cost of operating a sanitary fill.

To promote economy of operation, the incinerator site should be located as near as possible to the community's center of production. The theoretically best site may not be available because of neighborhood objections, but it should be practicable to locate a plant for a small community in a fringe or outlying area, particularly in areas which have been set aside for industry or similar usage. It is well, too, in establishing an incinerator site, that future growth of the community, and its direction, be taken into consideration. The same reasoning should apply in deciding upon the capacity of the incinerator to be constructed.

Insofar as the capacity of an incinerator is concerned, past experience as to production quantities should be a good guide, where an organized collection is already in operation. Where an entirely new system is to be established, the experience of other communities of similar population and general characteristics should prove valuable.

It has been considered, as a "rule of thumb," that 1 ton of refuse per day is produced per 1,000 population. That figure may be misleading. Many small communities have refuse production in excess of that figure. Further, the amount of commercial refuse varies considerably from place to place. Additional capacity may be needed for that reason, as well as to provide reserve for peak conditions and to anticipate the growth of the community.

In many sections of the United States, it has been determined that maximum production of refuse (except ashes) occurs in September. In some sections, it occurs in July or August. In

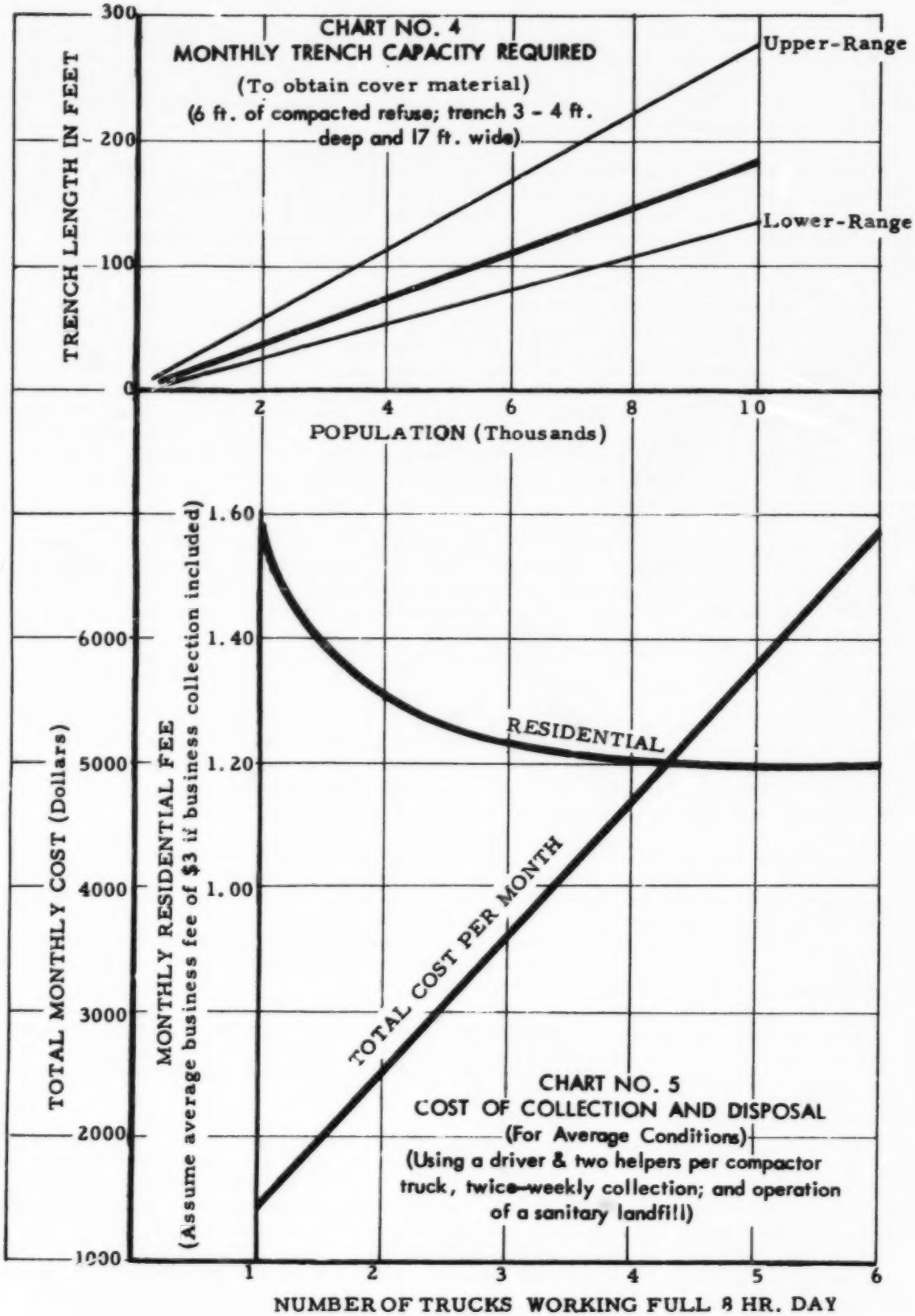


CHART NO. 4
MONTHLY TRENCH CAPACITY REQUIRED
(To obtain cover material)
(6 ft. of compacted refuse; trench 3 - 4 ft. deep and 17 ft. wide)
Upper-Range
Lower-Range
TRENCH LENGTH IN FEET
300
200
100
0
2
4
6
8
10
POPULATION (Thousands)
TOTAL MONTHLY COST (Dollars)
6000
5000
4000
3000
2000
1000
MONTHLY RESIDENTIAL FEE
(Assume average business fee of $3 if business collection included)
1.60
1.40
1.20
1.00
RESIDENTIAL
TOTAL COST PER MONTH
CHART NO. 5
COST OF COLLECTION AND DISPOSAL
(For Average Conditions)
(Using a driver & two helpers per compactor truck, twice-weekly collection; and operation of a sanitary landfill)
1
2
3
4
5
6
NUMBER OF TRUCKS WORKING FULL 8 HR. DAY

winter-resort areas, with great temporary increases in transient population, it may occur in the winter months. Capacity determination should be considered carefully, in the light of local conditions which will affect it.

The capacity of a refuse incinerator is usually based on 24 hour operation. In practice, however, this full-time operation is not always required. Where storage bins and mechanical charging equipment are used, it is practicable to operate even a small plant on a 24 hour basis. However, it is advisable to consider the plant capacity in relation to the actual number of hours that it is planned to operate it.

This manual does not intend to recommend or promote any type or make of refuse incinerator. Suffice it to say that modern plants can be operated readily without nuisance, and economically. Special attention should be directed to several points which should be useful in getting the best results from incinerator operation:

1. The collection system should be "geared" to the method of disposal. To improve incinerator operation, this means that water from rains should be kept out of refuse containers (by making the use of covered containers mandatory). Similarly, water from rains should not be allowed to accumulate in the collection vehicles.

2. Separate collection of certain non-combustibles (household ashes, etc.) is probably justified, particularly in cold climates. Combustible yard rubbish (tree branches, shrubs, etc.) should be reduced to a size which will permit it to be burned at the incinerator.

3. The plant should be designed to require minimum labor for stoking and ash removal. The average moisture content of modern mixed refuse is such that satisfactory temperatures can be easily attained. Proper instructions to operators should provide for nuisance free operation.

4. Finally, good housekeeping, should be practiced, especially with respect to keeping the plant clean, and preventing the accumulation of salvaged articles. It will pay good dividends in morale of the employees, as well as in public opinion.

Garbage Grinding.

Recently, a few small communities have attempted to resolve their garbage disposal problems by encouraging, or making mandatory, the community-wide installation of garbage grinders. The use of the garbage grinder is, undoubtedly, one of the most important developments in sanitary garbage disposal techniques in recent years. However, it must be kept in mind that, in America's household refuse today, garbage represents only 5 to 10 percent of the volume produced. The remaining 90 to 95 percent still has to be handled.

It has been possible, by the use of grinders, to reduce the frequency of collection of refuse other than garbage to less than twice weekly. To minimize the household storage problem, however, reduction to less than once weekly collection of other refuse should be avoided. It is important to remember, therefore, that while the installation of household garbage grinders may promote better community sanitation (provided, of course, that due consideration is given to sewage disposal requirements, which in most cases are not excessive), there remains the need for proper sanitary handling of other refuse.

The practicability of installing large commercial or municipal grinders should not be overlooked, particularly where separate collection is practiced, or at specific locations where heavy production of garbage constitutes a special problem.

Hog Feeding.

The feeding of garbage to pigs is not considered a particularly desirable disposal method. If adopted, all garbage should be cooked at boiling temperature for thirty (30) minutes or more before being utilized as feed. This is necessary to prevent spread of hog-borne diseases, such

as trichinosis and vesicular exanthema. Trichinosis is known to be transmissible to human beings through the eating of uncooked pork from infected hogs. Presently, no method of inoculation is known to prevent hogs or man from contracting these diseases.

Cholera can be prevented by proper inoculation. To prevent loss, it is in the interest of the hograiser to protect his stock in this manner. Precautions should be taken against strong chemicals (such as lye) and broken glass in the garbage fed to the hogs.

There is, usually, a certain amount of uneaten garbage and debris left after feeding hogs. This should be disposed of promptly and in a sanitary manner. "Good housekeeping" is essential to sanitation.

Hogfeeding will account for only 5 to 10 percent, by volume, of the refuse produced. The refuse remaining (rubbish and ashes) must then be collected and disposed of separately. Rubbish which is properly separated and which does not contain putrescible material can be readily burned in open spaces, if properly controlled. This would be more economical, probably, than either sanitary fill or incineration as a disposal method. However, it is not without nuisance, because of smoke and fire hazards to nearby dwellings or other buildings.

Salvage.

Hogfeeding, of course, is a form of "salvage," in that it utilizes food values that otherwise would go to waste. Other materials, such as rags, paper, cardboard, and metal, are usually present in household refuse. The market values for such materials vary considerably and, as a long-range plan, salvage is not suitable for the small community. In some cases, the collectors are permitted to salvage such articles and materials as they proceed about their work, and to dispose of the salvaged materials to local dealers. Also, hand-picking by scavengers at the disposal point (either incinerator or sanitary fill), has been practiced. It is not desirable, in the interest of sanitation and "good housekeeping." If permitted, strict control should be exercised to prevent it from becoming a nuisance. It is an open question, to be decided according to local conditions, as to whether or not the community should participate in the revenues derived from such salvage.

Composting.

Although it has had much publicity during the past year, composting, as a method of refuse disposal, is not new. The improvement of soil, by returning vegetation and other organic materials to it, has been known since man began to cultivate crops for his subsistence. To restore nitrogen, cover crops such as clover and cow peas are plowed under, and in a year or less are decomposed.

The value of composted refuse from households appears to lie in the mechanical improvement of the soil rather than as a fertilizer, measured by chemical standards. Besides rendering the soil more porous, or friable, and improving its capillary action so as to conserve moisture, composted refuse is also known to carry small amounts of various mineral elements needed by the soil.

The various processes which have been used in composting garbage and other household refuse on a commercial scale are directed toward speeding up the decomposition in comparison with natural conditions. From one to five weeks are required in manufacturing processes, compared to a year or more when nature is left to do the work.

This method, at present, is not considered applicable to the small community. It can use, probably, not more than 40 percent of the refuse collected, and highly skilled and intelligent operation is needed to obtain best results. Besides, the problem of marketing the product is a business undertaking, for which the small community is usually not adequately staffed.

FINANCING

The financing of the collection and disposal system should be considered a community-wide responsibility. Sufficient funds should be allotted to operate the system and to depreciate plant and equipment properly. In the past, this has been accomplished largely by the appropriations from general tax revenues. Because of legal limitations on taxation and/or borrowing, many small communities have been forced to look for other means of support for a satisfactory system. As a result in recent years, the fee system has enjoyed increasing popularity. Since it is believed that this will be of special interest to the communities for whom this publication is written, it is discussed in more detail below.

It should be pointed out, however, that financing refuse collection and disposal from general tax revenues eliminates the administrative and operational complications which ensue from direct charges, i.e., bookkeeping, service controversies, non-payment, and other problems.

When analyzing the cost of the system, items to be considered should include:

1. Initial capital investment (purchase of collection and disposal equipment and necessary land for disposal, the latter liquidated over a projected use period).

2. Depreciation of equipment (over a period of about 5 years).

3. Personnel Cost (equipment operators and laborers).

4. Operation and maintenance of equipment (gas, oil, repairs).

5. Miscellaneous contingencies (materials, supplies, insurance, administration, other).

These factors have been considered in Chart 5. It provides an estimate of the total monthly cost of collection and disposal in communities large enough to utilize from one to four collection vehicles for full-time operation.

The Fee Method.

Where fees for services rendered are billed to the individual separately from general taxes, a common method of collection is to include the refuse collection cost on the water or tax bill. This simplifies bookkeeping and clerical work, and cuts administrative costs. In any case, the use of the fee method might be governed by State enabling laws, and certainly the billing method will be governed by local preferences. Regardless of the method, there will be some who cannot or do not want to subscribe to the service. Each such case would have to be decided on its own merit. Flat fees on a monthly basis are preferred to those based on number of cans or volume of refuse produced and collected - especially for business places. Payments in advance are desirable. Chart 5 illustrates suggested residential fees.

In these days of higher tax rates - some at the maximum legal limit, the fee system often permits the improvement or establishment of a system for refuse collection and disposal which, otherwise, would be difficult or impossible to accomplish.

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APPENDIX C

A TEST SOLUTION FOR A TOWN OF 2,000 POPULATION

1. Compactor truck volume - 15 yd. 3/day (chart 2).

2. Number compactor trucks required = 1.0 (residential, all carry-out - and business, chart 1).

3. Assuming 9 cu.-yd. smallest compactor-type available –

   Then: $\frac{15 \text{ cu. yd.}}{9 \text{ cu. yd.}} = 1.67$ or 2.0 trips/day.

   Alternately: Assume 3 trips/day for dump truck (increase volume of refuse by 25%).

   Then: Total truck capacity required = 15 cu. yd. plus (25% of 15) = about 19 cu. yd.

   Truck capacity per load: $\frac{19}{3}$ = about 6 cu. yd.

Assuming the community can afford the purchase of a 9 cubic-yard compactor truck, the first alternative of (3) above shows that a 9 cubic-yard vehicle will serve the needs of a city of 2,000, making 2 trips per day, under the criteria upon which the tables were based. It should be pointed out that the compactor-type truck is very expensive and, although it does an efficient job, its use is primarily restricted to refuse collection.

On the other hand, under the second alternative of (3), an 8 cubic-yard (recommended minimum-size dump truck) scow-body dump truck will serve the needs of the community, making 3 trips daily under the aforementioned criteria. This type of truck will serve not only in refuse collection, but in other public works uses as well. It should be kept in mind also, that the comparatively low cost of this type of truck is much easier for the small communities to finance.

APPENDIX D

A LONG-FORM ORDINANCE GOVERNING REFUSE STORAGE, COLLECTION, AND DISPOSAL

The following "long-form" ordinance is designed to indicate with considerable specificity the requirements imposed and the authority conferred by the ordinance. It is intended for use by communities which, by law or practice, require an ordinance with all provisions developed in detail. Each municipality's local attorney should review this ordinance, prior to adoption, and should make such changes as may be required by local conditions and pertinent legal requirements.

> AN ORDINANCE authorizing and directing the establishment, maintenance, operation, and financing of refuse collection systems and refuse disposal methods and sites; the storage, collection, and disposal of refuse; the establishment and enforcement of necessary and proper regulations for storage, collection, and disposal of refuse; and the fixing and levying of refuse service charges.1/

WHEREAS, in the (name of political subdivision) there are, or may in the future be, refuse storage, collection, or disposal practices which are so unsafe, dangerous, unhygienic, or insanitary as to constitute a menace to the health and safety of the people of this (name of political subdivision):

BE IT, THEREFORE, ORDAINED by the (name of legislative body) of the (name of political subdivision), as follows:

Section 1. Definitions. For the purposes of this ordinance, the following words and phrases shall have the meanings ascribed to them in this section:

Person shall mean any institution, public or private corporation, individual, partnership, or other entity.

Premises shall mean land, buildings, or other structures, vehicles, watercraft, or parts thereof, upon or in which refuse is stored.

Refuse shall mean all solid wastes of a community, including garbage, ashes, rubbish, dead animals, street cleanings, and solid market, and industrial wastes, but not including body wastes.

Responsible Authority2/ - shall mean the legally designated authority of the (name of political subdivision) who shall be authorized and directed to implement and enforce the provisions of this ordinance, or his authorized representative.

Section 2. Functions of (Responsible Authority). (The responsible authority) of the (name of political subdivision), in order to protect the health and safety of the people this (name of political subdivision), is authorized and directed, by implementing and enforcing the provision of this ordinance, to control the storage, collection, and disposal of refuse within (name of political subdivision), to provide a public refuse collection and refuse disposal service from premises within (the name of political subdivision), so that the type and usual quantity of refuse can be safely and expeditiously handled by such public refuse collection and disposal service, and/or to approve and regulate the establishment, maintenance, and operation of private refuse-collection systems and refuse-disposal methods and sites.

1/ The fixing and levying of refuse service charges would, of course, be applicable only in those cases in which it is not possible and/or desirable to finance all of the system out of general tax funds.

2/ While many communities may wish to designate the health officer as the responsible authority, other communities may consider it desirable to vest someone other than the health officer with the power and duty of carrying out an ordinance of this type.

Section 3.[3] Funds; Appropriation, Borrowing, Other Means.

(a) The (name of legislative body) of the (name of political subdivision) is authorized to make funds available by appropriation, by borrowing, or by other means, in accordance with the laws and procedures of this (name of political subdivision), for equipment for the collection or disposal of refuse, and for the establishment, maintenance, and operation of refuse collection systems and refuse disposal methods and sites.

(b) Refuse service charges within the (name of corporate unit), for the purpose of financing the establishment, maintenance, and operation of refuse collection systems or refuse disposal methods and sites, are hereby levied in accordance with the following schedules:[4]

(1) The rate of charge to each household dwelling for the collection and disposal of refuse shall be in accordance with the following schedule:

(list schedule of charges here.)

(2) The rate of charges to each institution, business, and industrial establishment for collection and disposal of refuse shall be in accordance with the following schedule:

(List schedule of charges here.)

(c) Refuse service charges, as provided by this section, shall be payable (monthly, quarterly, semi-annually), (by separate billing in conjunction with the water bill, with assessed property taxes.)[5] Such refuse service charges shall be collected by the (appropriate official of the political subdivision).

Section 4. Permits. (a) It shall be unlawful for any person who does not possess an unrevoked permit from (the responsible authority) to engage in the business of refuse collection or refuse disposal for compensation in (name of political subdivision). (The responsible authority) shall issue permits for such applicants: Provided, That such permits shall be limited to persons having proper equipment and personnel to collect and dispose of refuse in accordance with the provisions of this ordinance, and Provided, further, That the method of disposal used is in accordance with the requirements of section 14 of this ordinance.

(b) Every person desiring to engage in the collection and/or disposal of refuse shall make written application to (the responsible authority), setting forth the name of such person, the residence address thereof or the address of the place of business, a description of the equipment to be used in the collection and/or disposal of such refuse, the place of disposal and the method of disposal to be practiced. Upon approval of such application, (the responsible authority) shall issue a permit to the applicant. The permit fee shall be $_____, payable in advance to (the responsible authority).

(c) Any person whose application for a permit has been denied may request, and shall be granted, a hearing before (the responsible authority), under the procedure provided by section 6 of this ordinance.

(d) A permit issued under this ordinance shall expire on the _____ day of _____ in each year. Permits shall be renewable annually, in the same manner and upon payment of the same annual fee as provided in subsection (a) of this section.

Section 5. Prohibitions; Private Responsibility. (a) The owner or his agent, or the occupant, of any premises within the (name of political subdivision) shall be responsible for the sanitary condition of the premises occupied by him, and it shall be unlawful for any person to place, deposit, or allow to be placed or deposited on his premises any refuse, except as designated by the terms of this ordinance.

3/ Subsections (b) and (c) of this section are intended to be used only by communities which desire to utilize refuse service charges as a method of financing. This should not be done, however, without first determining whether additional requirements are imposed by other laws and ordinances.

4/ Schedules, of course, may need to be modified, in accordance with the extent of service provided by the community.

5/ Strike out words not applicable.

(b) Any person responsible for (1) refuse on premises not served by the refuse collection system of (the responsible authority), or for (2) refuse not acceptable for collection by (the responsible authority), shall make arrangements for the collection and disposal of such refuse with a refuse collector who holds a valid registration certificate issued by the health officer of (the political subdivision).

Section 6. Enforcement; Service of Notices and Orders; Hearings. (a) Whenever (the responsible authority) determines that there are reasonble grounds to believe that there has been a violation of any provision of this ordinance, he shall give notice of such alleged violation to the person or persons responsible therefor, as hereinafter provided. Such notice shall:

(1) Be put into writing;

(2) Include a statement of the reasons why it is being issued;

(3) Allow a reasonable time for the performance of any act it requires;

(4) Be served upon the holder of a permit issued under this ordinance, or upon the owner or his agent or the occupant of any premises within the (name of political subdivision): Provided, That such notice shall be deemed to have been properly served when a copy thereof has been served personally, or in accordance with any other method authorized or required under the laws of this State.

Such notice may:

(5) Contain an outline of remedial action which, if taken, will effect compliance with the provisions of this ordinance;

(6) State that, unless conditions or practices described in such notice which violate this ordinance are corrected within the reasonable time specified in such notice, a permit which has been issued pursuant to this ordinance may be suspended or revoked.

(b) Any person who is affected by any notice issued in connection with the enforcement of any provision of this ordinance may request, and shall be granted, a hearing on the matter before (the responsible authority): Provided, That such person shall file, in the office of (the responsible authority), a written petition requesting such hearing and setting forth a brief statement of the ground therefor, within 10 days after the day the notice was served. Upon receipt of such petition, (the responsible authority) shall set a time and place for such hearing, and shall give the petitioner written notice thereof. At such hearing, the petitioner shall be given an opportunity to be heard. The hearing shall be commenced not later than 10 days after the day on which the petition was filed: Provided, That, upon application of the petitioner, (the responsible authority) may postpone the date of the hearing for a reasonable time beyond such 10-day period when, in his judgment, the petitioner has submitted a good and sufficient reason for such postponement.

(c) After such hearing, (the responsible authority) shall sustain, modify, or withdraw the notice, depending upon his finding based on such hearing as to whether or not the provisions of this ordinance and of the regulations adopted pursuant thereto have been complied with. If (the responsible authority) sustains or modifies such notice, it shall be deemed to be an order. Any notice shall automatically become an order if a written petition for a hearing has not been filed in the office of (the responsible authority) within 10 days after such notice was served. In the case of any notice which states that a permit required by this ordinance may be suspended or revoked, (the responsible authority) may suspend or revoke such permit if an order is issued and corrective action has not been taken within the time specified in the notice.

(d) The proceedings at such hearing, including the findings and decision of (the responsible authority), shall be summarized, reduced to writing, and entered as a matter of public record in the office of (the responsible authority). Such record shall include, also, a copy of every notice or order issued in connection with the matter. Any person aggrieved by the decision of (the responsible authority) may seek relief therefrom in any court of competent jurisdiction, as provided by the laws of this State.

(e) Whenever (the responsible authority) finds that an emergency exists involving a serious health hazard which requires immediate action to protect the public health, he may, without notice

or hearing, issue a written order reciting the existence of such an emergency and the conditions violating this ordinance which require corrective action to remove such health hazard. If such corrective action is not taken, (the responsible authority) may take such action as may be necessary to protect the public health. Notwithstanding other provisions of this ordinance, such order shall be effective immediately. Any person to whom such order is directed shall comply therewith immediately, but upon petition to (the responsible authority) shall be afforded a hearing as soon as possible, but in any case not later than 3 days after the petition was filed. After such hearing, depending upon his finding as to whether or not the provisions of this ordinance and of the regulations adopted pursuant thereto have been complied with, (the responsible authority) shall continue such order in effect, or modify it, or revoke it.

Section 7. Inspection. (The responsible authority), after identifying himself, shall have the power to enter at reasonable times upon private or public property for the purpose of inspecting and investigating conditions relating to the enforcement of the provisions of this ordinance.

Section 8.[6/] Refuse Acceptable for Collection by (the Responsible Authority). The following refuse shall be considered to be acceptable for collection by (the responsible authority):

(a) Garbage: Putrescible animal and vegetable wastes resulting from the handling, preparation, cooking, and/or consumption of foods.

(b) Ashes: The residue from the burning of wood, coal, coke, or other combustible materials.

(c) Rubbish:[7/] Nonputrescible solid wastes, excluding ashes, consisting of paper, cardboard, tin cans, yard clippings, wood, glass, bedding, crockery, metals, and similar materials.

(d) Dead Animals: Small, dead animals, not exceeding (75) pounds each in weights, which die in the normal course of community activity excluding condemned animals, animals from a slaughterhouse, or other animals normally considered industrial refuse, shall be removed by (the responsible authority) upon request.

Section 9. Refuse not Acceptable for Collection by (the Responsible Authority). The following refuse shall be considered to be not acceptable for collection by (the responsible authority):

(a) Dangerous materials or substances, such as poisons, acids, caustics, infected materials, and explosives.

(b) Unusual quantities of materials resulting from the repair, excavation, or construction of buildings or structures, such as earth, plaster, mortar, and roofing material.

(c) Materials which have not been prepared for collection in accordance with these regulations.

(d) The solid wastes resulting from industrial processes.

6/ This section and section 9 may need to be modified, in accordance with the extent of service provided by the community.

7/ For communities which desire to have combustible and noncombustible rubbish separated, the following is suggested for substitution:

(c) Rubbish: Nonputrescible solid wastes, excluding ashes.

(1) Combustible Rubbish: Nonputrescible solid wastes, (excluding ashes) which will burn at incinerator temperatures of 1,300° to 2,000° Fahrenheit.

(2) Noncombustible Rubbish: Nonputrescible solid wastes, (excluding ashes) which will not burn at incinerator temperatures of 1,300° to 2,000° Fahrenheit.

(ALTERNATE SECTION 10)[8]

Section 10. Refuse Storage. (a) Garbage shall be drained (and wrapped)[9], and stored in durable, rust-resisting, nonabsorbent, water tight, and easily washable containers, which shall have close-fitting covers and adequate handles or bails to facilitate collection, and which shall be of not less than _____ gallons nor more than _____ gallons in capacity for households, nor more than _____ gallons in capacity for businesses, or multi-family apartments or dwellings.[10]

(b) Ashes shall be stored in fire-resistant containers with close-fitting covers. Such containers shall be equipped with adequate handles to facilitate collection, and shall be not greater than _____ gallons in capacity for households and _____ gallons for business establishments. Ashes containing hot embers shall not be placed in containers for collection.[10]

(c) Rubbish[11] shall be stored in durable containers with close-fitting covers, except that bulky rubbish such as trees, weeds, and large cardboard boxes, may be bundled so as not to exceed _____ feet in length nor _____ pounds in weight.[12]

(d) It shall be unlawful to permit refuse, except bulky rubbish, to accumulate on any premises except in containers which are approved by (the responsible authority), in accordance with the specifications contained in subsections (a), (b) and (c) of this section.

(ALTERNATE SECTION 10)[13]

Section 10. Refuse Storage. (a) Garbage shall be drained and wrapped.

(b) Bulky rubbish such as trees, weeds, and large cardboard boxes, may be bundled so as not to exceed _____ feet in length nor _____ pounds in weight.[12]

8/ This alternate section 10 is designed for communities which desire to have separate storage and collection systems for garbage and rubbish. Specification of separate or combined storage will depend upon local disposal practices. Where garbage is utilized for composting or hogfeeding, or disposed of at a central grinding station, separate storage will be necessary. Garbage and rubbish usually can be stored together when incineration is used as the only disposal method. When the sanitary landfill is used, combined storage is permissible. In all cases, during certain times of National need, salvage operations may necessitate separate storage of one or more items of refuse.

9/ Strike out if not applicable.

10/ Usual recommended sizes for garbage and ash container for households are from 10 to 20 gallons. Similar standards would apply to business or multi-family units, except in the case of containers specially designed to facilitate handling. In such a case, a statement should be included allowing acceptance of the use of this type of container upon approval by the responsible authority.

11/ A more detailed provision will be necessary in communities which desire to separate combustible and noncombustible rubbish.

12/ Bulky rubbish is usually restricted to a size capable of being relatively easy to handle by the collection crew and equipment. Where compactor-type trucks are used, length is usually restricted to not more than 4 feet. The weight limitation is usually about 50 pounds.

13/ This alternate section 10 is designed for communities which desire to have a combined refuse storage and collection system. Communities which have a combined garbage and rubbish storage and collection system may wish to provide for the separation of ashes, because of possible fire hazards. In such a case, it is suggested that section (10b) of the first alternate section 10 be used.

(c) All other refuse shall be stored in durable, metal, watertight, and easily washable containers, which have close-fitting lids and adequate handles to facilitate collection. Such containers shall be of not less than _____ gallons nor more than _____ gallons in capacity for households, nor more than _____ gallons in capacity for businesses, or multi-family apartments or dwellings. 14/

(d) It shall be unlawful to permit refuse, except bulky rubbish, to accumulate on any premises except in containers which are approved by (the responsible authority), in accordance with the specifications contained in this section.

(e) Ashes containing hot embers shall not be placed in containers for collection.

Section 11. Refuse Collection; Places to be Served by (the Responsible Authority). (a) The responsible authority) shall collect all refuse acceptable for collection, as provided in section 8 of this ordinance, from all single-family dwellings and from all multi-family or apartment dwellings not exceeding _____ family units, and the following types of institutions and business and industrial establishments: 15/

(b) The following types of establishments shall not be rendered refuse collection service by (the responsible authority): 16/

(ALTERNATE SECTION 12) 17/

Section 12. Frequency of Collection. (a) All household refuse shall be collected by (the responsible authority) according to the following schedule:

(1) Garbage shall be collected (frequency of collection).

(2) Ashes shall be collected (frequency of collection).

(3) Rubbish shall be collected (frequency of collection).

(b) All institutional, business, and industrial refuse shall be collected by (the responsible authority) according to the following schedule:

(1) Garbage shall be collected (frequency of collection).

14/ Containers permitted for combined refuse storage are usually limited to maximum capacity of about 30 gallons. The lower capacity limit is suggested merely to preclude the collectors having to handle numerous small containers at any premises, and is usually about 10 gallons. Similar standards would apply to business or multi-family units, except in the case of containers specially designed to facilitate handling. In such a case, a statement should be included allowing acceptance of the use of this type of container upon approval by the responsible authority.

15/ Where collections from institutions, businesses, and industrial establishments are not contemplated, the words "and the following types of institutions and businesses and industrial establishments" should be omitted.

16/ In order to avoid misunderstandings, it is desirable, usually, to include a descriptive listing of types of properties for which service will not be rendered.

This subsection may be expanded to specify that premises situated in areas which are not passable for collection trucks in certain seasons of the year will not be rendered refuse collection service by the responsible authorities during those seasons.

17/ This alternate section is designed for communities where separate collection is practiced. All refuse should be collected frequently enough to prevent nuisance and to control insect-breeding. Usually, twice-weekly collection of garbage during the summer and once-weekly collection during the winter are sufficient. Rubbish may be collected less frequently, preferably once weekly. In certain areas of the South, three-times-weekly collection of garbage may be desirable. Institutions and business and industrial establishments usually require daily collection.

(2) Ashes shall be collected (frequency of collection).

(3) Rubbish shall be collected (frequency of collection).

(c) Collections shall not be made on the following holidays (list holidays), unless otherwise specified by (the responsible authority):

(ALTERNATE SECTION 12) [18]

Section 12. Frequency of Collection. (a) All household refuse shall be collected by (the responsible authority) (frequency of collection).

(b) All institutional, business, and industrial refuse shall be collected by (the responsible authority) (frequency of collection).

(c) Collections shall not be made on the following holidays (list holidays), unless otherwise specified by (the responsible authority):

Section 13. Place of Collection. All refuse to be collected by (the responsible authority) shall be placed (at a designated time) (at a designated collection area). [19]

Section 14. Refuse Disposal. (a) All disposal of refuse shall be by a method or methods in accordance with requirements of State and local law, and shall include the maximum practicable rodent, insect, and nuisance control at the place or places of disposal.

(b) No garbage shall be fed to hogs, unless such garbage has been heat-treated to kill any disease agents therein, by boiling for 30 minutes or by other equally effective means.

(c) Animal offal and carcasses of dead animals shall be buried or cremated as directed by (the responsible authority), or shall be rendered at 40 pounds per square inch of steam pressure or higher, or shall be heated by equivalent cooking.

Section 15. Equipment. (a) All public or private vehicles used for the collection or disposal of refuse shall have enclosed bodies, or suitable provision for covering the body. Provision and use of a tarpaulin or canvas cover to enclose open bodies of collection vehicles may be permitted when specifically approved by (the responsible authority).

(b) Vehicles used for the collection or disposal of garbage, or of refuse containing garbage, shall have watertight, metal bodies of easily cleanable construction, shall be cleaned at sufficient frequency [20] to prevent nuisance or insect-breeding, and shall be maintained in good repair.

18/ This alternate section is designed for communities where combined collection is practiced. All refuse should be collected frequently enough to prevent nuisance and to control insect-breeding. Usually, twice-weekly collection during the summer and once-weekly collection during the winter are sufficient. In certain areas of the South, three-times-weekly collection may be desirable. Institutions and business and industrial establishments generally require daily collection.

19/ The designated collection area will vary according to the collection system. For example, curb collection would require setting out containers on the sidewalk area. Where alley collection is possible, the designated area would be the rear property line or reasonable distance thereto. In recent years, premises pickup has become increasingly popular. In this system, the material is collected from the rear of the premises or other convenient area, usually not more than 100 feet from the property line abutting the main street, or about 10 feet above or below the grade of the street.

20/ Truck-bodies in which unwrapped garbage is hauled should be cleaned daily, especially during the fly-breeding season. All refuse vehicles should be cleaned and inspected at least once weekly.

Section 16. Penalties. Any person who shall violate any provision of this ordinance, upon conviction, shall be punished by a fine of not less than $_____, or by imprisonment for not less than _____ days nor more than _____ days, and each day's failure to comply with any such provision shall constitute a separate violation.

Section 17. Repeal and Date of Effect. All ordinances and parts of ordinances in conflict with this ordinance are hereby repealed; and this ordinance shall be in full force and effect immediately upon its adoption and publication as provided by law, provided that existing establishments shall be permitted a period of not more than 12 months after date of adoption and publication to comply with the provisions of this ordinance.

Section 18. Severability. Should any section, paragraph, sentence, clause, or phrase of this ordinance be declared unconstitutional or invalid for any reason, the remainder of such ordinance shall not be affected thereby.

APPENDIX E

A SHORT-FORM ORDINANCE GOVERNING REFUSE STORAGE, COLLECTION, AND DISPOSAL

The following "short-form" ordinance is designed to be a legal framework for the basic authority necessary to carry out the purposes of the ordinance. It should be supplemented with regulations, such as the suggested regulations in Appendix F. The "short-form" ordinance is intended for communities which desire a relatively brief basic ordinance, to be implemented by administrative regulations. Each Municipality's local attorney should review this ordinance prior to adoption, and should make such changes as may be required by local conditions and pertinent legal requirements.

> **AN ORDINANCE** authorizing and directing the establishment, maintenance, operation, and financing of refuse collection systems and refuse disposal methods and sites; the storage, collection, and disposal of refuse; the establishment and enforcement of necessary and proper regulations for the storage, collection, and disposal of refuse; and the fixing and levying of refuse service charges. 1/

WHEREAS, in the (name of political subdivision) there are, or may in the future be, refuse-storage, collection, or disposal practices which are so unsafe, dangerous, unhygienic, or insanitary as to constitute a menace to the health and safety of the people of this (name of political subdivision):

BE IT, THEREFORE, ORDAINED by the (name of legislative body) of the (name of political subdivision), as follows:

Section 1. Definitions. For the purposes of this ordinance, the following words and phrases shall have the meanings ascribed to them in this section:

Person shall mean any institution, public or private corporation, individual, partnership, or other entity.

Premises shall mean land, buildings, or other structures, vehicles, watercraft, or parts thereof, upon or in which refuse is stored.

Refuse shall mean all solid wastes of a community, including garbage, ashes, rubbish, dead animals, street cleanings, and solid market and industrial wastes, but not including body wastes.

Responsible Authority 2/ Shall mean the legally designated authority of the (name of political subdivision) who shall be authorized and directed to implement and enforce the provisions of this ordinance, or his authorized representative.

Section 2. Functions of (responsible authority). (The responsible authority) of the (name of political subdivision), in order to protect the health and safety of the people of this (name of political subdivision), is authorized and directed, by implementing and enforcing the provisions of this ordinance, to control the storage, collection, and disposal of refuse within (name of political subdivision), to provide a public refuse collection and refuse disposal service from premises within (name of political subdivision), so that the type and usual quantity of refuse can be safely and expeditiously handled by such public refuse collection and refuse disposal service, and/or to approve and regulate the establishment, maintenance, and operation of private refuse collection and refuse disposal methods and sites.

1/ The fixing and levying of refuse service charges would, of course, be applicable only in cases where it is not possible and/or desirable to finance all of the system out of general tax funds.

2/ While many communities may wish to designate the health officer as the responsible authority, other communities may consider it desirable to vest someone other than the health officer with the power and duty of carrying out an ordinance of this type.

Section 3.3/ Funds, Appropriation, Borrowing, Other Means. (a) The (name of legislative body) of the (name of political subdivision) is authorized to make funds available by appropriation, by borrowing, or by other means, in accordance with the laws and procedures of this (name of political subdivision), for equipment for the collection or disposal of refuse, and for the establishment, maintenance, and operation of refuse collection systems and refuse disposal methods and sites.

(b) Refuse service charges within the (name of corporate unit), for the purpose of financing the establishment, maintenance, and operation of refuse collection systems or refuse disposal methods and sites are hereby levied in accordance with the following schedules:4/

(1) The rate of charge to each household dwelling for the collection and disposal of refuse shall be in accordance with the following schedule:

(List schedule of charges here)

(2) The rate of charges to each institution, business, and industrial establishment for collection and disposal of refuse shall be in accordance with the following schedule:

(List schedule of charges here)

(c) Refuse service charges, as provided by this section, shall be payable (monthly, quarterly, semi-annually), (by separate billing in conjunction with the water bill, with assessed property taxes)5/ Such refuse service charges shall be collected by the (appropriate official of the political subdivision).

Section 4. Permits (a) It shall be unlawful for any person who does not possess an unrevoked permit from (the responsible authority) to engage in the business of refuse collection or refuse disposal for compensation in (name of political subdivision). (The responsible authority) shall issue permits for such applicants: Provided, That such permits shall be limited to persons having proper equipment and personnel to collect and dispose of refuse in accordance with the provisions of this ordinance, and Provided further, That the method of disposal used is in accordance with the requirements of this ordinance and regulations promulgated thereunder.

(b) Every person desiring to engage in the collection and/or disposal or refuse shall make written application to (the responsible authority), setting forth the name of such person, the residence address thereof or the address of the place of business, a description of the equipment to be used in the collection and/or disposal of such refuse, the place of disposal, and the method of disposal to be practiced. Upon approval of such application, (the responsible authority) shall issue a permit to the applicant. The permit fee shall be $_____, payable in advance to (the responsible authority).

(c) Any person whose application for a permit has been denied may request, and shall be granted, a hearing before (the responsible authority), under the procedure provided by section 6 of this ordinance.

(d) A permit issued under this ordinance shall expire on the_____ day of _____ of each year. Permits shall be renewable annually, in the same manner and upon payment of the same annual fee as provided in subsection (a) of this section.

Section 5. Prohibitions; private responsibility. (a) The owner or his agent, or the occupant, of any premises within the (name of political subdivision) shall be responsible for the sanitary condition of the premises occupied by him, and it shall be unlawful for any person to place, deposit, or allow to be placed or deposited on his premises any refuse, except as designated by the terms of this ordinance.

3/ Subsections (b) and (c) of this section are intended to be used only by communities desiring to utilize refuse service charges as a method of financing. This should not be done, however, without first determining whether additional requirements are imposed by other laws and ordinances.

4/ Schedules, of course, may need to be modified in accordance with the extent of service provided by the community.

5/ Strike out words not applicable.

(b) Any person responsible for (1) refuse on premises not served by the refuse collection system of (the responsible authority), or for (2) refuse not acceptable for collection by (the responsible authority), shall make arrangements for the collection and disposal of such refuse with a refuse collector who holds a valid registration certificate issued by (the responsible authority) of (the political subdivision).

Section 6. Enforcement; Service of Notices and Orders; Hearings. (a) Whenever (the responsible authority) determines that there are reasonable grounds to believe that there has been a violation of any provision of this ordinance, or of any regulation adopted pursuant thereto, he shall give notice of such alleged violation to the person or persons responsible therefor as hereinafter provided. Such notice shall:

(1) Be put into writing;

(2) Include a statement of the reasons why it is being issued;

(3) Allow a reasonable time for the performance of any act it requires;

(4) Be served upon the holder of a permit ussued under this ordinance, or upon the owner or his agent or the occupant of any premises within the (name of political subdivision): Provided, That such notice shall be deemed to have been properly served when a copy thereof has been served personally, or in accordance with any other method authorized or required under the laws of this State.

Such notice may:

(5) Contain an outline of remedial action which, if taken, will effect compliance with the provisions of this ordinance;

(6) State that, unless conditions or practices described in such notice which violate this ordinance are corrected within the reasonable time specified in such notice, a permit which has been issued purusant to this ordinance may be suspended or revoked.

(b) Any person who is affected by any notice which has been issued in connection with the enforcement of any provision of this ordinance, or of any regulation adopted pursuant thereto, may request, and shall be granted, a hearing on the matter before (the responsible authority): Provided, That such person shall file, in the office of (the responsible authority), a written petition requesting such hearing and setting forth a brief statement of the ground therefor, within 10 days after the day the notice was served. Upon receipt of such petition, (the responsible authority) shall set a time and place for such hearing, and shall give the petitioner written notice thereof. At such hearing, the petitioner shall be given an opportunity to be heard. The hearing shall be commenced not later than 10 days after the day on which the petition was filed: Provided, That, upon application of the petitioner, (the responsible authority) may postpone the date of the hearing for a reasonable time beyond such 10-day period when, in his judgment, the petitioner has submitted a good and sufficient reason for such postponement.

(c) After such hearing, (the responsible authority) shall sustain, modify, or withdraw the notice, depending upon his finding based on such hearing as to whether or not the provisions of this ordinance and of the regulations adopted pursuant thereto have been complied with. If (the responsible authority) sustains or modifies such notice, it shall be deemed to be an order. Any notice shall automatically become an order if a written petition for a hearing has not been filed in the office of (the responsible authority) within 10 days after such notice was served. In the case of any notice which states that a permit required by this ordinance may be suspended or revoked, (the responsible authority) may suspend or revoke such permit if an order is issued and corrective action has not been taken within the time specified in the notice.

(d) The proceedings at such hearing, including the findings and decision of (the responsible authority), shall be summarized, put into writing, and entered as a matter of public record in the office of (the responsible authority). Such record shall include, also, a copy of every notice or order issued in connection with the matter. Any person aggrieved by the decision of (the responsible authority) may seek relief therefrom in any court of competent jurisdiction, as provided by the laws of this State.

(e) Whenever (the responsible authority) finds that an emergency exists involving a serious health hazard which requires immediate action to protect the public health, he may, without notice or hearing, issue a written order citing the existence of such an emergency and the conditions violating this ordinance which require corrective action to remove such health hazard. If such corrective action has not been taken, (the responsible authority) may take such action as may be necessary to protect the public health, including stoppage of processing operations. Notwithstanding other provisions of this ordinance, such order shall be effective immediately. Any person to whom such order is directed shall comply therewith immediately, but upon petition to (the responsible authority) shall be afforded a hearing as soon as possible, but in any case not later than 3 days after the petition was filed. After such hearing, depending upon his finding as to whether or not the provisions of this ordinance and of the regulations adopted pursuant thereto have been complied with, (the responsible authority) shall continue such order in effect, or modify it, or revoke it.

Section 7. Inspection. (The responsible authority), after identifying himself, shall have the power to enter at reasonable times upon private or public property for the purpose of inspecting and investigating conditions relating to the enforcement of the provisions of this ordinance.

Section 8. Regulations. (The responsible authority) is hereby authorized and directed, after a public hearing has been held in accordance with the laws governing the conduct of public hearings by (the responsible authority) of this (name of political subdivision), to adopt such written regulations as may be necessary for the implementation and enforcement of the provisions of this ordinance. Such regulations shall be published once in a newspaper published within the (name of political subdivision) and, if there should be no such newspaper, then such regulations shall be posted for one week in three public places of the (name of political subdivision). (The responsible authority) shall file a certified copy of all regulations which he may adopt with the clerk of this (name of political subdivision), and such regulations shall be made available for the inspection of the public on request. Such regulations shall have the same force and effect as the provisions of this ordinance, and the penalty for violation thereof shall be the same as the penalty for violation of the provisions of this ordinance, as hereafter provided.

Section 9. Penalties. Any person who shall violate any provision of this ordinance, or any regulation adopted thereunder, upon conviction, shall be punished by a fine of not less than $_____, or imprisonment for not less than _____ days nor more than _____ days, and each day's failure to comply with any such provision shall constitute a separate violation.

Section 10. Repeal and Date of Effect. All ordinances and parts of ordinances in conflict with this ordinance are hereby repealed; and this ordinance shall be in full force and effect immediately upon its adoption and publication as provided by law: Provided, That existing establishments shall be permitted a period of not more than 13 months after date of adoption and publication to comply with the provisions of this ordinance.

Section 11. Severability. Should any section, paragraph, sentence, clause, or phrase of this ordinance be declared unconstitutional or invalid for any reason, the remainder of such ordinance shall not be affected thereby.

APPENDIX F

SUGGESTED REGULATIONS FOR THE STORAGE, COLLECTION, AND DISPOSAL OF REFUSE

Section 1. Scope. (a) The following regulations governing the storage, collection, and disposal of refuse produced or otherwise created within the (name of political subdivision) are hereby adopted by (the responsible authority), pursuant to (identify appropriate ordinance).

(b) All premises, except those herein designated by (the responsible authority), shall make use of the system of refuse storage, collection, and disposal, in accordance with these regulations.

Section 2.[1] Refuse Acceptable for Collection by (the responsible authority). The following refuse shall be considered to be acceptable for collection by (the responsible authority):

(a) Garbage: Putrescible animal and vegetable wastes resulting from the handling, preparation, cooking, and/or consumption of foods.

(b) Ashes: The residue from the burning of wood, coal, coke, or other combustible materials.

(c) Rubbish:[2] Nonputrescible solid wastes, excluding ashes, consisting of paper, cardboard, tin cans, yard clippings, wood, glass, bedding, crockery, metal, and similar materials.

(d) Dead Animals: Small, dead animals, not exceeding (75) pounds each in weight, which die in the normal course of community activity, excluding condemned animals, or animals from a slaughterhouse, or other animals normally considered industrial refuse, shall be removed by (the responsible authority) upon request.

Section 3. Refuse Not Acceptable for Collection by (the responsible authority). The following refuse shall be considered to be not acceptable for collection by (the responsible authority):

(a) Dangerous materials or substances, such as poisons, acids, caustics, infected materials, and explosives.

(b) Unusual quantities of materials resulting from the repair, excavation, or construction of buildings or structures, such as earth, plaster, mortar, and roofing material.

(c) Materials which have not been prepared for collection in accordance with these regulations.

(d) The solid wastes resulting from industrial processes.

1/ This section and Section 3 may need to be modified, in accordance with the extent of service provided by the community.

2/ For communities which desire to have combustible and non-combustible rubbish separated, the following is suggested for substitution:

(c) Rubbish: Nonputrescible solid wastes, excluding ashes.

(1) Combustible Rubbing: Nonputrescible solid wastes (excluding ashes) which will burn at incinerator temperatures of 1,300° to 2,000° Fahrenheit.

(2) Noncombustible Rubbish: Nonputrescible solid wastes (excluding ashes) which will not burn at incinerator temperatures of 1,300° to 2,000° Fahrenheit.

(ALTERNATE SECTION 4) 3/

Section 4. Refuse Storage. (a) Garbage shall be drained (and wrapped) 4/, and stored in durable, rust-resisting, nonabsorbent, water-tight, and easily washable containers, which shall have close-fitting covers and adequate handles or bails to facilitate collection, and which shall be of not less than _____ gallons nor more than _____ gallons in capacity for households, nor more than _____ gallons in capacity for businesses or multi-family apartments or dwellings. 5/

(b) Ashes shall be stored in fire-resistant containers with close-fitting covers. Such containers shall be equipped with adequate handles to facilitate collection, and shall be not greater than _____ gallons in capacity for households and _____ gallons for business establishments. Ashes containing hot embers shall not be placed in containers for collection. 5/

(c) Rubbish 6/ shall be stored in durable containers with close-fitting covers, except bulky rubbish such as trees, weeds, and large cardboard boxes, may be bundled so as not to exceed _____ feet in length nor _____ pounds in weight. 7/

(d) It shall be unlawful to permit refuse, except bulky rubbish, to accumulate on any premises except in containers which are approved by (the responsible authority), in accordance with the specifications contained in subsections (a), (b), and (c) of this section.

(ALTERNATE SECTION 4) 8/

Section 4. Refuse Storage. (a) Garbage shall be drained and wrapped.

(b) Bulky rubbish such as trees, weeds, and large cardboard boxes may be bundled so as not to exceed _____ feet in length nor _____ pounds in weight. 7/

3/ This alternate section 4 is designed for communities which desire to have separate storage and collection systems for garbage and rubbish. Specification of separate or combined storage will depend upon local disposal practices. Where garbage is utilized for composting or hogfeeding, or disposed of at a central grinding station, separate storage will be necessary. Garbage and rubbish usually can be stored together when incineration is used as the only disposal method. When the sanitary landfill is used, combined storage is permissible. In all cases, during certain times of National need, salvage operations may necessitate separate storage of one or more items of refuse.

4/ Strike out if not applicable.

5/ Usual recommended sizes for garbage and ash container for households are from 10 to 20 gallons. Similar standards would apply to business or multi-family units, except in the case of containers specially designed to facilitate handling. In such a case, a statement should be included allowing acceptance of the use of this type of container upon approval by the responsible authority.

6/ A more detailed provision will be necessary in communities which desire to separate combustible and noncombustible rubbish.

7/ Bulky rubbish is usually restricted to a size capable of being relatively easy to handle by the collection crew and equipment. Where compactor-type trucks are used, length is usually restricted to not more than 4 feet. The weight limitation is usually about 50 pounds.

8/ This alternate section 4 is designed for communities which desire to have a combined refuse storage and collection system. Communities which have a combined garbage and rubbish storage and collection system may wish to provide for the separation of ashes, because of possible fire hazards. In such a case, it is suggested that section 4 (b) of the first alternate section 4 be used to accomplish this result.

(c) All other refuse shall be stored in durable, metal, water-tight, and easily washable containers, which have close-fitting lids and adequate handles to facilitate collection. Such containers shall be of not less than _____ gallons nor more than _____ gallons in capacity for households, nor more than _____ gallons in capacity for businesses or multi-family apartments or dwellings.9/

(d) Ashes containing hot embers shall not be placed in containers for collection.

(e) It shall be unlawful to permit refuse, except bulky rubbish, to accumulate on any premises except in containers which are approved by (the responsible authority), in accordance with the specifications contained in subsection (c) of this section.

Section 5. Refuse Collection; Places to be Served by (the responsible authority). (a) (The responsible authority) shall collect all refuse acceptable for collection, as provided in section 2 of these regulations, from all single-family dwellings and all multi-family or apartment dwellings not exceeding _____ family units, and the following types of institutions and businesses and industrial establishments:10/

(b) The following types of establishments shall not be rendered refuse collection service by (the responsible authority):11/

(ALTERNATE SECTION 6) 12/

Section 6. Frequency of Collection. (a) All household refuse shall be collected by (the responsible authority) according to the following schedule:

(1) Garbage shall be collected (frequency of collection).

(2) Ashes shall be collected (frequency of collection).

(3) Rubbish shall be collected (frequency of collection).

(b) All institutional, business, and industrial refuse shall be collected by (the responsible authority) according to the following schedule:

(1) Garbage shall be collected (frequency of collection).

(2) Ashes shall be collected (frequency of collection).

9/ Containers permitted for combined refuse storage are usually limited to about 30 gallons maximum capacity. The lower capacity limit is suggested merely to preclude the collectors having to handle numerous small containers at any one premise, and is usually about 10 gallons. Similar standards would apply to business or multi-family units except in the case of containers specially designed to facilitate handling. If such is the case, a statement should be included allowing acceptance of the use of this type container upon approval by the responsible authority.

10/ Where collections from institutions, businesses, and industrial establishments are not contemplated, the words "and the following types of institutions and businesses and industrial establishments" should be omitted.

11/ In order to avoid misunderstandings, it is desirable, usually, to include a descriptive listing of properties for which service will not be rendered.

This subsection may be expanded to specify that premises situated in areas which are not passable for collection trucks in certain seasons of the year will not be rendered refuse collection service by the responsible authorities during those seasons.

12/ This alternate section 6 is designed for communities where separate collection is practiced. All refuse should be collected frequently enough to prevent nuisance and to control insect-breeding. Usually, twice-weekly collection of garbage during the summer and once-weekly collection during the winter are sufficient. Rubbish may be collected less frequently, preferably once weekly. In certain areas of the South, three-times-weekly collection of garbage may be desirable. Institutions and business and industrial establishments generally require daily collection.

(3) Rubbish shall be collected (frequency of collection).

(c) Collections shall not be made on the following holidays (list holidays), unless otherwise specified by (the responsible authority):

(ALTERNATE SECTION 6) 13/

Section 6. Frequency of Collection. (a) All household refuse shall be collected by (the responsible authority) (frequency of collection).

(b) All institutional, business, and industrial refuse shall be collected by (the responsible authority) (frequency of collection).

(c) Collections shall not be made on the following holidays (list holidays), unless otherwise specified by (the responsible authority):

Section 7. Place of Collection. All refuse to be collected by (the responsible authority) shall be placed (at a designated collection time), (at a designated collection area). 14/

Section 8. Refuse Disposal. (a) All disposal of refuse shall be by a method or methods in accordance with requirements of State and local law, and shall include the maximum practicable rodent, insect, and nuisance control at the place or places of disposal.

(b) No garbage shall be fed to hogs, unless such garbage has been heat-treated to kill any disease agent therein, by boiling for 30 minutes, or by other equally effective means.

(c) Animal offal and carcasses of dead animals shall be buried or cremated as directed by (the responsible authority), or shall be rendered at 40 pounds per square inch of steam pressure or higher, or shall be heated by equivalent cooking.

Section 9. Equipment. (a) All public or private vehicles used for the collection or disposal of refuse shall have enclosed bodies, or suitable provision for covering the body. Provision and use of a canvas or tarpaulin cover to enclose open bodies of collection vehicles may be permitted when specifically approved by (the responsible authority).

(b) Vehicles used for the collection or disposal of garbage, or of refuse containing garbage, shall have watertight, metal bodies of easily cleanable construction, shall be cleaned at sufficient frequency 15/ to prevent nuisance or insect-breeding, and shall be maintained in good repair.

Section 10. Penalties. Any person who shall violate any provision of these regulations, upon conviction, shall be punished by a fine of not less than $_____, or by imprisonment for not less than _____ days, and each day's failure to comply with any such provision shall constitute a separate violation, as provided in (identify appropriate ordinance).

13/ This alternate section 6 is designed for communities where combined collection is practiced. All refuse should be collected frequently enough to prevent nuisance and to control insect-breeding. Usually, twice-weekly collection during the summer and once-weekly collection during the winter are sufficient. In certain areas of the South, three-times-weekly collection may be desirable. Institutions and business and industrial establishments generally require daily collection.

14/ The designated collection area will vary according to the collection system. For example, curb collection would require setting out containers on the sidewalk area. Where alley collection is possible, the designated area would be the rear property line or reasonable distance thereto. In recent years, premises pickup has become increasingly popular. In this system, the material is collected from the rear of the premises, or other convenient area, usually not more than 100 feet from the property line abutting the main street or about 10 feet above or below the grade of the street.

15/ Truck-bodies in which unwrapped garbage is hauled should be cleaned daily, especially during the fly-breeding season. All refuse vehicles should be cleaned and inspected at least once weekly.